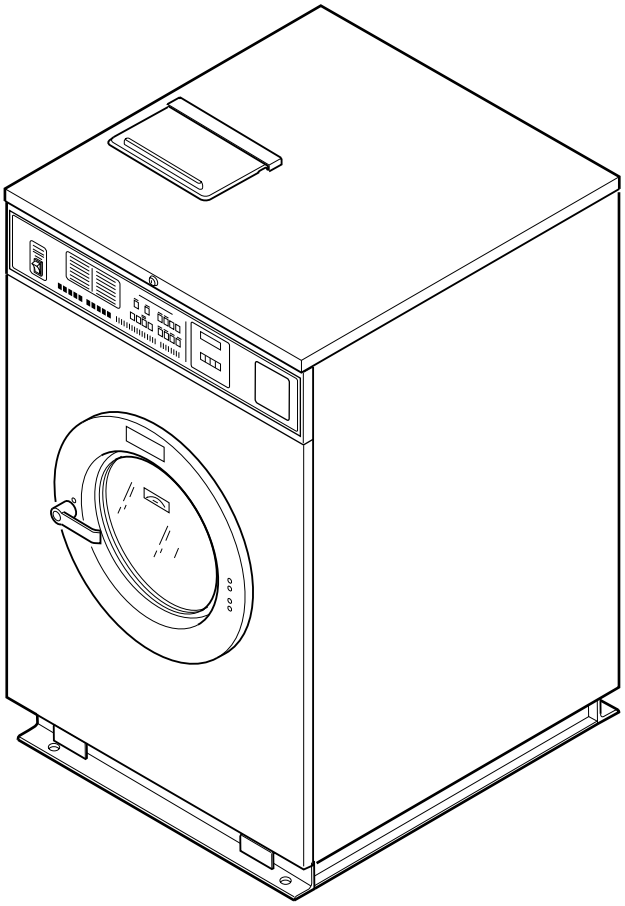
Washer-Extractor

Cabinet Hardmount
P, S and V Computer

Refer to Page 8 for Model Numbers



CHM1323C

Troubleshooting

Alliance Laundry Systems

www.comlaundry.com

Part No. F232203R2
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Notes

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Section 1
Safety Information

Throughout this manual and on machine decals, you will find precautionary statements ("CAUTION," "WARNING," and "DANGER") followed by specific instructions. These precautions are intended for the personal safety of the operator, user, servicer and those maintaining the machine.

⚠ DANGER

Danger indicates the presence of a hazard that **will** cause **severe** personal injury, death or substantial property damage if the danger is ignored.

⚠ WARNING

Warning indicates the presence of a hazard that **can** cause **severe** personal injury, death or substantial property damage if the warning is ignored.

⚠ CAUTION

Caution indicates the presence of a hazard that **will** or **can** cause **minor** personal injury or property damage if the caution is ignored.

Additional precautionary statements ("IMPORTANT" and "NOTE") are followed by specific instructions.

IMPORTANT

The word "IMPORTANT" is used to inform the reader of specific procedures where minor machine damage will occur if the procedure is not followed.

NOTE

The word "NOTE" is used to communicate installation, operation, maintenance or servicing information that is important but not hazard related.

General Safety Precautions

In the interest of safety, some general precautions relating to the operation of this machine follow.

WARNING

- **Failure to install, maintain and/or operate this product according to the manufacturer's instructions may result in conditions which can produce serious injury, death and/or property damage.**
- **Do not repair or replace any part of the product or attempt any servicing unless specifically recommended or published in this Service Manual and unless you understand and have the skills to carry out the servicing.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the product is properly grounded and to reduce the risk of fire, electric shock, serious injury or death.**

W006R2

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WARNING

To reduce the risk of electric shock, fire, explosion, serious injury or death:
- **Disconnect electric power to the washer-extractor before servicing.**
- **Never start the washer-extractor with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer-extractor is properly grounded.**

W460

WARNING

Repairs that are made to your products by unqualified persons can result in hazards due to improper assembly or adjustments subjecting you or the inexperienced person making such repairs to the risk of serious injury, electrical shock or death.

W007

WARNING

If you or an unqualified person perform service on your product, you must assume the responsibility for any personal injury or property damage which may result. The manufacturer will not be responsible for any injury or property damage arising from improper service and/or service procedures.

W008

Always contact your dealer, distributor, service agent or the manufacturer about any problems or conditions you do not understand.

Important Safety Instructions

WARNING

To reduce the risk of fire, electric shock, serious injury or death to persons when using your washer, follow these basic precautions:

W023E

1. Read all instructions before using the washer-extractor.
2. Refer to the GROUNDING INSTRUCTIONS in the INSTALLATION manual (supplied with your washer-extractor) for the proper grounding of the washer-extractor.
3. Do not wash textiles that have been previously cleaned in, washed in, soaked in or spotted with gasoline, dry-cleaning solvents or other flammable or explosive substances. They give off vapors that could ignite or explode.
4. Do not add gasoline, dry-cleaning solvents or other flammable or explosive substances to the wash water. These substances give off vapors that could ignite or explode.
5. Under certain conditions, hydrogen gas may be produced in a hot water system that has not been used for two weeks or more. HYDROGEN GAS IS EXPLOSIVE. If the hot water system has not been used for such a period, before using a washer-extractor, turn on all hot water faucets and let the water flow from each for several minutes. This will release any accumulated hydrogen gas. The gas is flammable. Do not smoke or use an open flame during this time.

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6. Do not allow children to play on or in a washer-extractor. Close supervision of children is necessary when the washer-extractor is used near children.
7. Before the washer-extractor is removed from service or discarded, remove the door to the washing compartment.
8. Do not reach into the washer-extractor if the wash basket is moving.
9. Do not install or store the washer-extractor where it will be exposed to water and/or weather.
10. Do not tamper with the washer-extractor's controls.
11. Do not repair or replace any part of the washer-extractor or attempt any servicing unless specifically recommended in the user-maintenance instructions or in published user-repair instructions that the user understands and has the skills to carry out.
12. To reduce the risk of an electrical shock or fire, DO NOT use an extension cord or an adapter to connect the washer-extractor to an electrical power source.
13. Use the washer-extractor only for its intended purpose, washing clothes.
14. ALWAYS disconnect the washer-extractor from its electrical supply before attempting any service.
15. Install the washer-extractor according to the INSTALLATION INSTRUCTIONS. All connections for water, drain, electrical power and grounding must comply with local codes and, when required, be made by licensed personnel.
16. To reduce the risk of fire, textiles which have traces of any flammable substances such as vegetable oil, cooking oil, machine oil, flammable chemicals, thinner, etc. or anything containing wax or chemicals such as in mops or cleaning cloths, must not be put into the washer-extractor. These flammable substances may cause the fabric to ignite.
17. Do not use fabric softeners or products to eliminate static unless recommended by the manufacturer of the fabric softener or product.
18. Keep the washer-extractor in good condition. Bumping or dropping the washer-extractor can damage its safety features. If this occurs, have the washer-extractor checked by a qualified service person.
19. Replace worn power cords and/or loose plugs.
20. Be sure that water connections have a shut-off valve and that fill hose connections are tight. CLOSE the shut-off valves at the end of each wash day.
21. The loading door MUST BE CLOSED any time the washer-extractor is to fill, tumble or spin. DO NOT by-pass the loading door switch and permit the washer-extractor to operate with the loading door open.
22. Always read and follow the manufacturer's instructions on packages of laundry and cleaning aids. Heed all warnings and precautions. To reduce the risk of poisoning or chemical burns, keep them out of the reach of children at all times (preferably in a locked cabinet).
23. Always follow the fabric care instructions supplied by the textile manufacturer.
24. Never operate the washer-extractor with any guards and/or panels removed.
25. DO NOT operate the washer-extractor with missing or broken parts.
26. DO NOT by-pass any safety devices.
27. Failure to install, maintain and/or operate this washer-extractor according to the manufacturer's instructions may result in conditions that can produce bodily injury and/or property damage.

NOTE: The WARNING and IMPORTANT SAFETY INSTRUCTIONS appearing in this manual are not meant to cover all possible conditions and situations that may occur. Common sense, caution and care must be exercised when installing, maintaining and operating the washer-extractor.

Any problems or conditions not understood should be reported to the dealer, distributor, service agent or the manufacturer.

Locating an Authorized Servicer

Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

Warranty service must be performed by an authorized technician, using authorized factory parts. If service is required after the warranty expires, Alliance Laundry Systems also recommends contacting an authorized technician and using authorized factory parts.

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Section 2
Introduction

Customer Service

Alliance Laundry Systems is not responsible for personal injury or property damage resulting from improper service. Review all service information before beginning repairs.

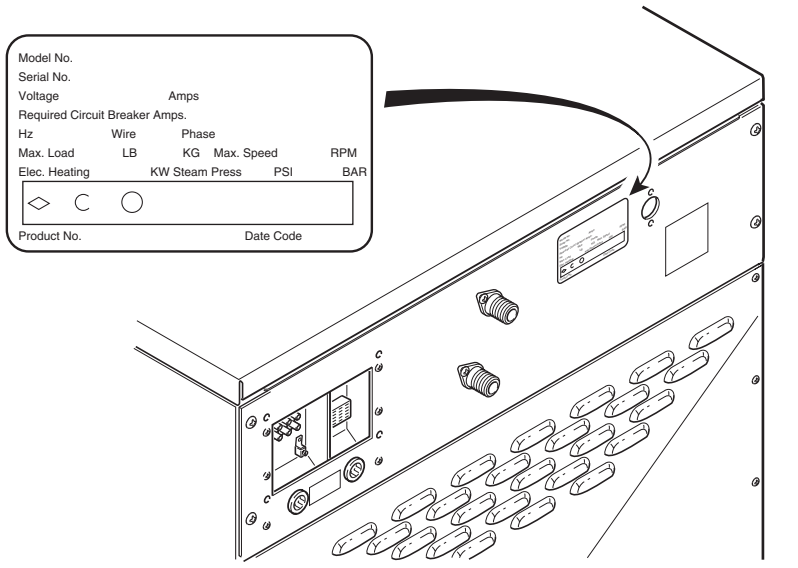
If literature or replacement parts are required, contact the source from whom the machine was purchased or contact Alliance Laundry Systems at (920) 748-3950 for the name of the nearest authorized parts distributor.

For technical assistance, call the following number:

(920) 748-3121

Nameplate Location

When calling or writing about your product, be sure to mention model and serial numbers. Model and serial numbers are located on nameplate(s) as shown.



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Model Identification

Information in this manual is applicable to these washer-extractors.

HC18PC2	HC40VX2	SC25VN2	SC80VNV	UC35PN2
HC18SN2	HC50PC2	SC27SN2	UC125VNV	UC35PN3
HC18VC2	HC50SN2	SC27VN2	UC18PC2	UC35VN2
HC20SN2	HC50VC2	SC27VNV	UC18PC3	UC35VNV
HC20VC2	HC50VX2	SC30VN2	UC18PN2	UC40PN2
HC20VX2	HC60SN2	SC35PC3	UC18PN3	UC40VN2
HC25PC2	HC60VC2	SC35SN2	UC18VN2	UC40VNV
HC25SN2	HC60VX2	SC35SN3	UC18VNV	UC50PC2
HC25VC2	HC80PC3	SC35VN2	UC20PN2	UC50PC3
HC25VX2	HC80SN3	SC35VNV	UC20VN2	UC50PN2
HC27PC2	HC80VCV	SC40VN2	UC25PC2	UC50PN3
HC27SN2	HC80VNV	SC40VNV	UC25PN2	UC50VN2
HC27VC2	HC80VXV	SC50PC3	UC25VN2	UC50VNV
HC30SN2	SC125VNV	SC50SN2	UC27PC2	UC60PN2
HC30VC2	SC18PC3	SC50SN3	UC27PN2	UC60VN2
HC30VX2	SC18SN2	SC50VN2	UC27VN2	UC60VNF
HC35PC2	SC18SN3	SC50VNV	UC27VNV	UC60VNV
HC35SN2	SC18VN2	SC60VN2	UC30PN2	UC80PC3
HC35VC2	SC18VNV	SC60VNF	UC30VN2	UC80PN3
HC40SN2	SC20VN2	SC60VNV	UC35PC2	UC80VNV
HC40VC2	SC25SN2	SC80SN3	UC35PC3	

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Section 3
Troubleshooting

WARNING

To reduce the risk of electrical shock, fire, explosion, serious injury or death:
- **Disconnect electrical power to the washer-extractor before servicing it.**
- **Close the gas shut-off valve to the washer-extractor (when applicable) before servicing it.**
- **Never start the washer-extractor with any guards/panels removed.**
- **Whenever ground wires are removed during servicing, these ground wires must be reconnected to ensure that the washer-extractor is properly grounded.**

W461R1

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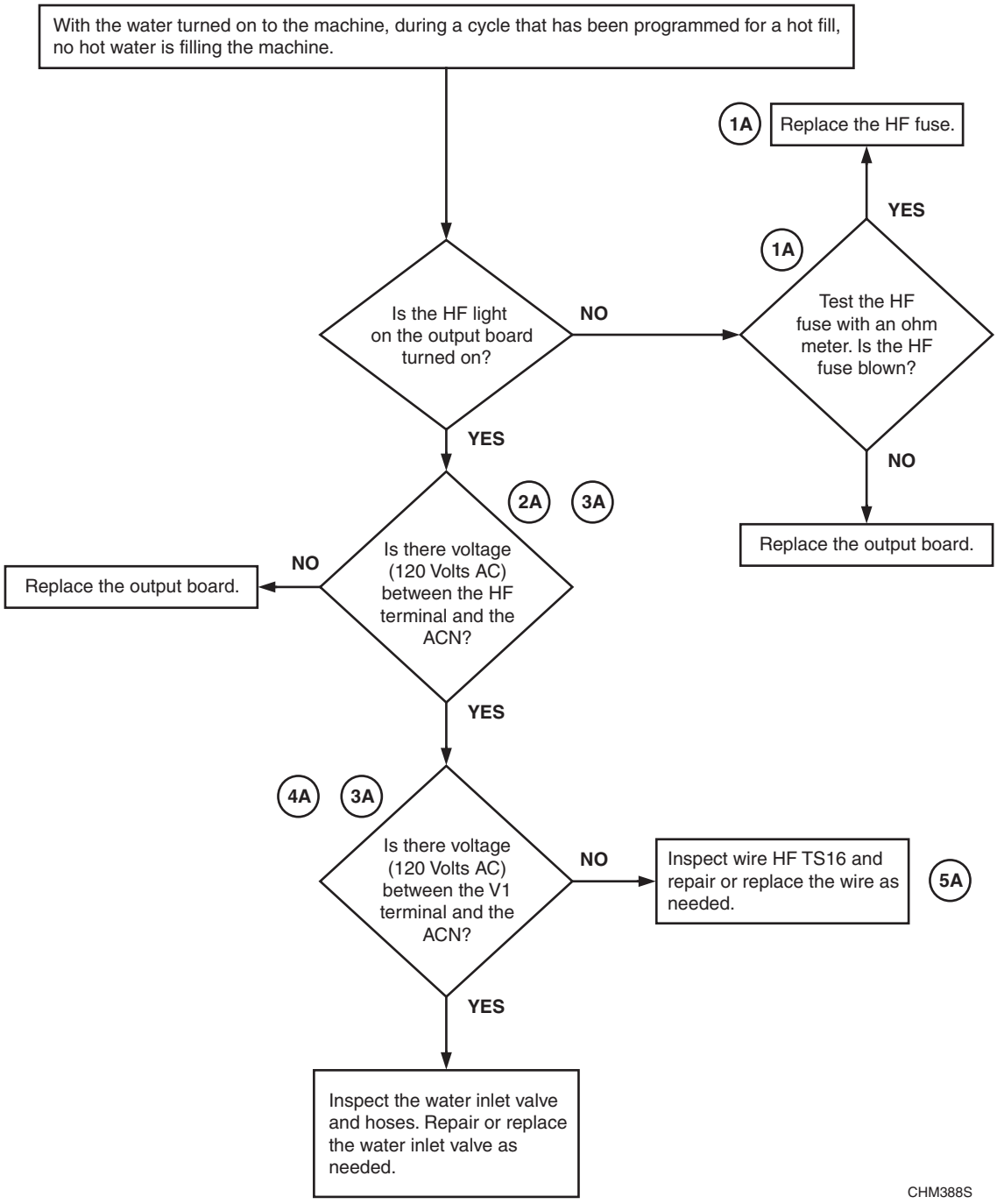
1. No Hot Fill Analysis (OPL)


With the water turned on to the machine, during a cycle that has been programmed for a hot fill, no hot water is filling the machine.
Is the HF light on the output board turned on?
NO
YES
1A
Test the HF fuse with an ohm meter. Is the HF fuse blown?
YES
1A
Replace the HF fuse.
NO
Replace the output board.
2A
3A
Is there voltage (120 Volts AC) between the HF terminal and the ACN?
NO
Replace the output board.
YES
4A
3A
Is there voltage (120 Volts AC) between the V1 terminal and the ACN?
NO
Inspect wire HF TS16 and repair or replace the wire as needed.
5A
YES
Inspect the water inlet valve and hoses. Repair or replace the water inlet valve as needed.
CHM388S

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Please refer to the following 2 pages for wiring diagram information.

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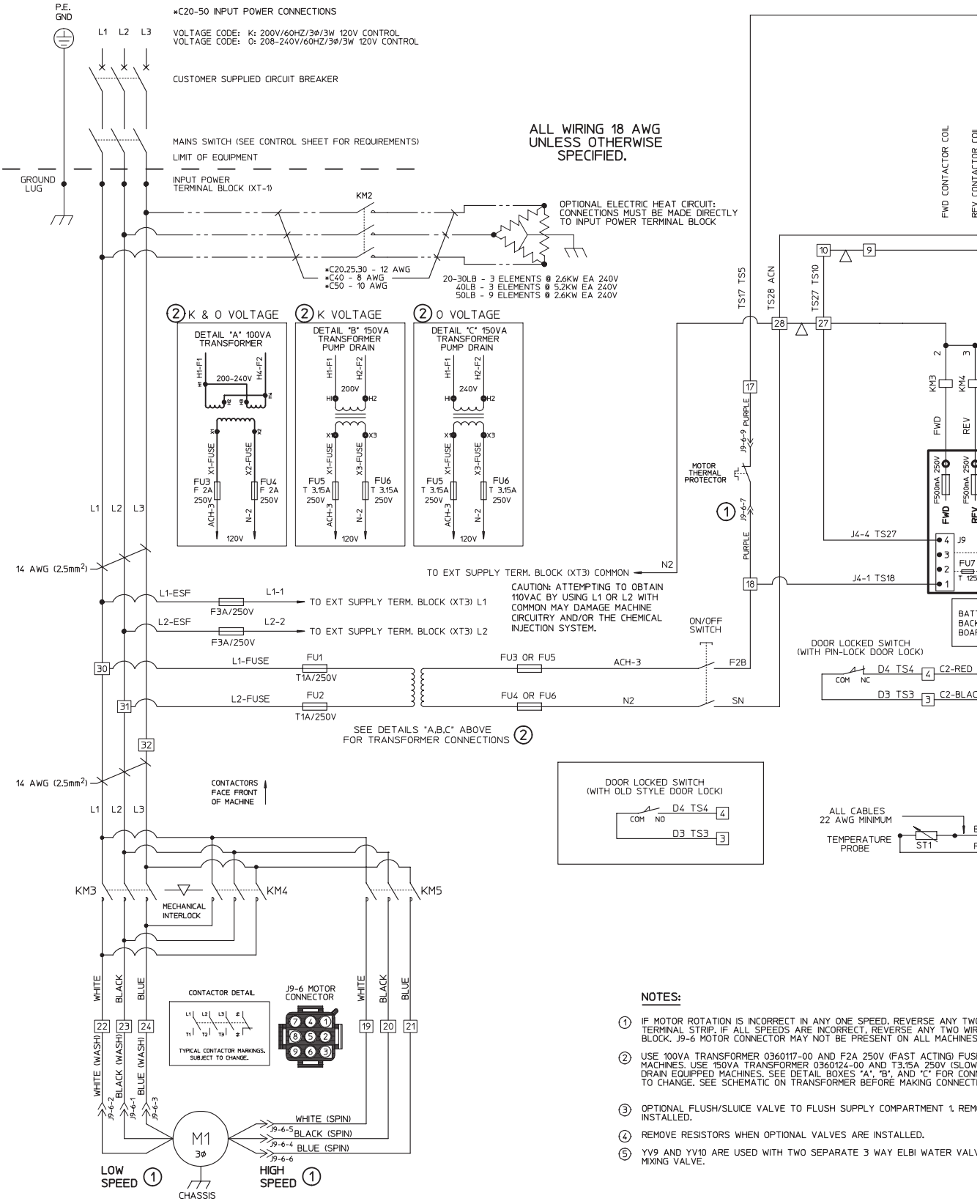
No Hot Fill Analysis (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
2 K VOLTAGE
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
2 O VOLTAGE
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
MOTOR THERMAL PROTECTOR
ON/OFF SWITCH
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
J9-6 MOTOR CONNECTOR
LOW SPEED 1
HIGH SPEED 1
CHASSIS
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIR BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES
2 USE 100VA TRANSFORMER Q360117-00 AND F2A 250V (FAST ACTING) FUS MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CON TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECT
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REM INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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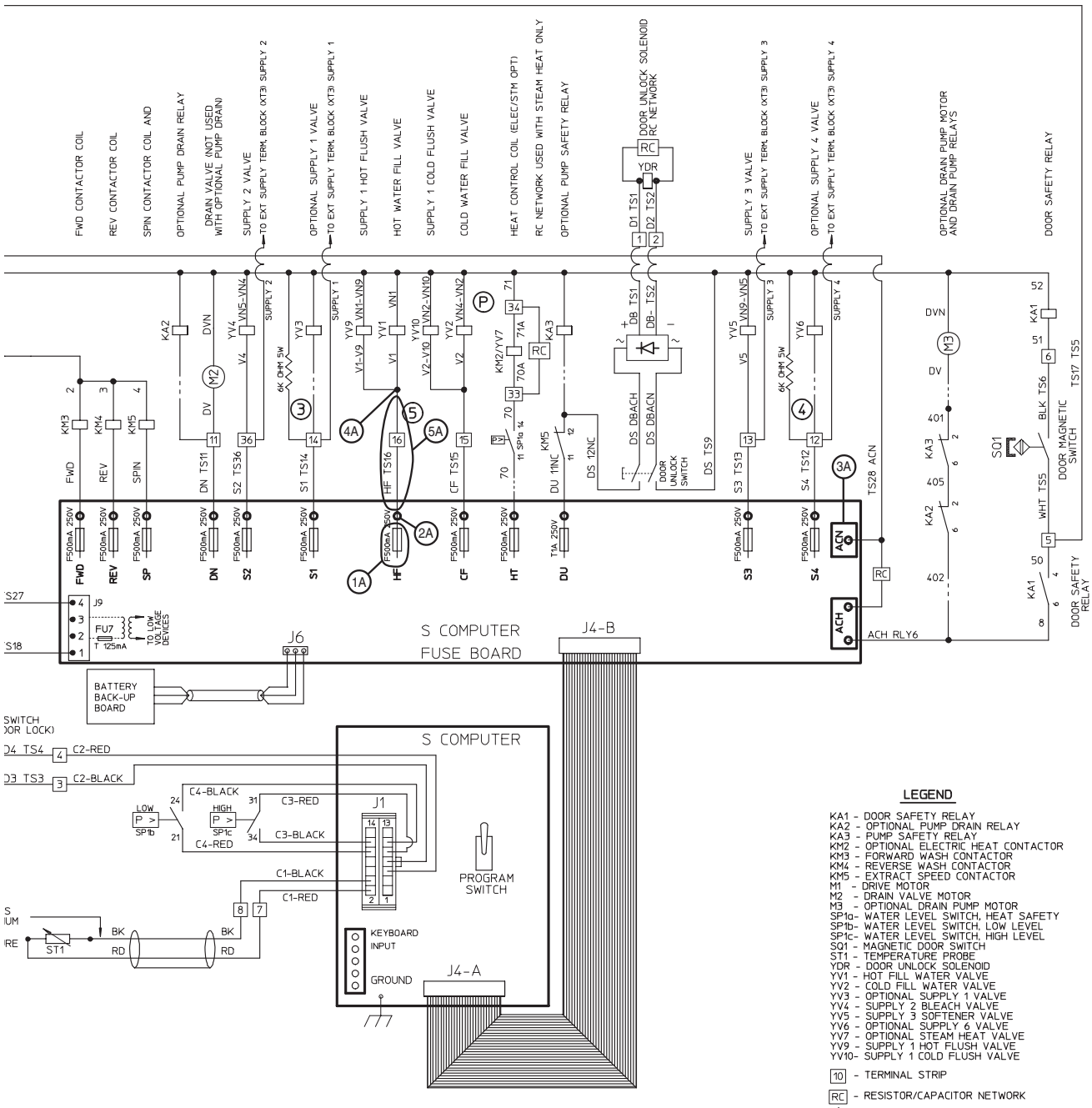
No Hot Fill Analysis (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS

:D. REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
EVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
NT ON ALL MACHINES.

V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
ID T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
ORE MAKING CONNECTIONS.

COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS

NSTALLED.

'AY ELBI WATER VALVES, ARE NOT USED WITH MULLER

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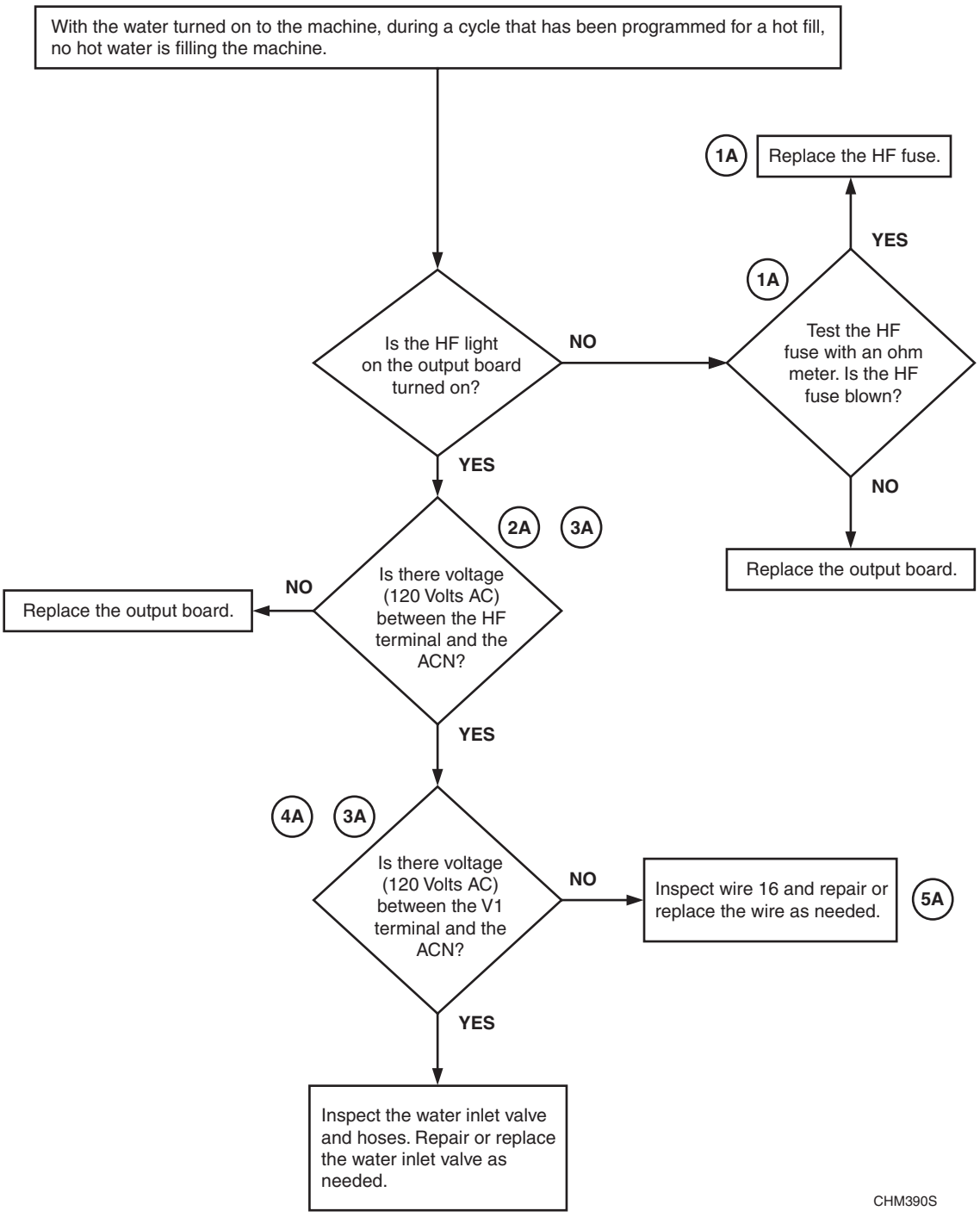
2. No Hot Fill Analysis (Coin)


With the water turned on to the machine, during a cycle that has been programmed for a hot fill, no hot water is filling the machine.
Is the HF light on the output board turned on?
NO
YES
1A
Test the HF fuse with an ohm meter. Is the HF fuse blown?
YES
1A
Replace the HF fuse.
NO
Replace the output board.
2A
3A
Is there voltage (120 Volts AC) between the HF terminal and the ACN?
NO
Replace the output board.
YES
4A
3A
Is there voltage (120 Volts AC) between the V1 terminal and the ACN?
NO
Inspect wire 16 and repair or replace the wire as needed.
5A
YES
Inspect the water inlet valve and hoses. Repair or replace the water inlet valve as needed.
CHM390S

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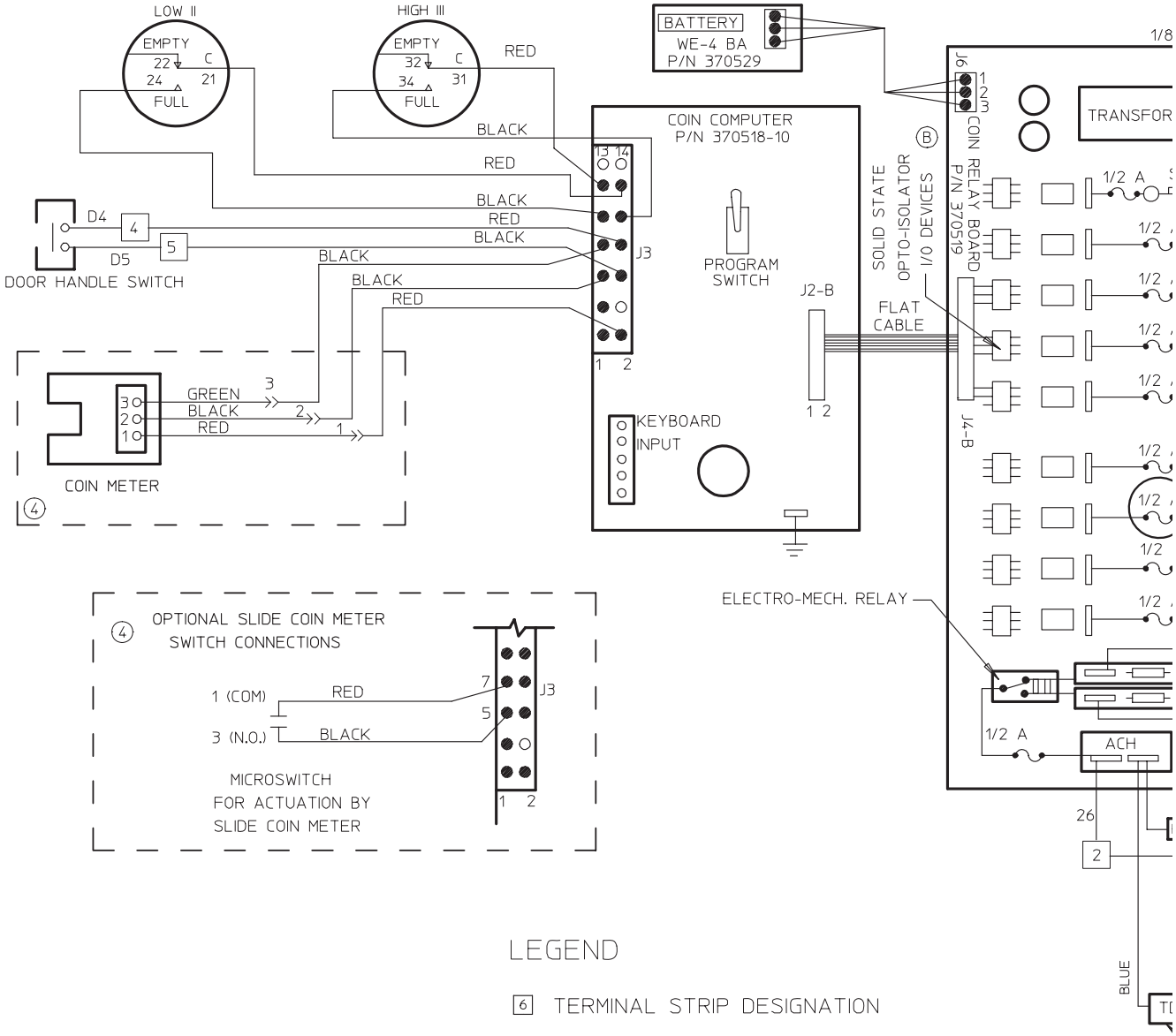
No Hot Fill Analysis (Sheet 1 of 2)



LEGEND

- 6 TERMINAL STRIP DESIGNATION
- RC RESISTOR/CAPACITOR NETWORK
- △ JUMPER

NOTES

1. CAN BE USED AS SUPPLY 3 OR COIN BLOCKING COIL.
2. SUPPLIES WILL COME ON WITH FILL.
3. CAPACITOR RATED 240uF, 450VDC.
4. OPTIONAL SLIDE COIN METER SWITCH CONNECTION

NOTE: Refer to the wiring diagram supplied with your machine.

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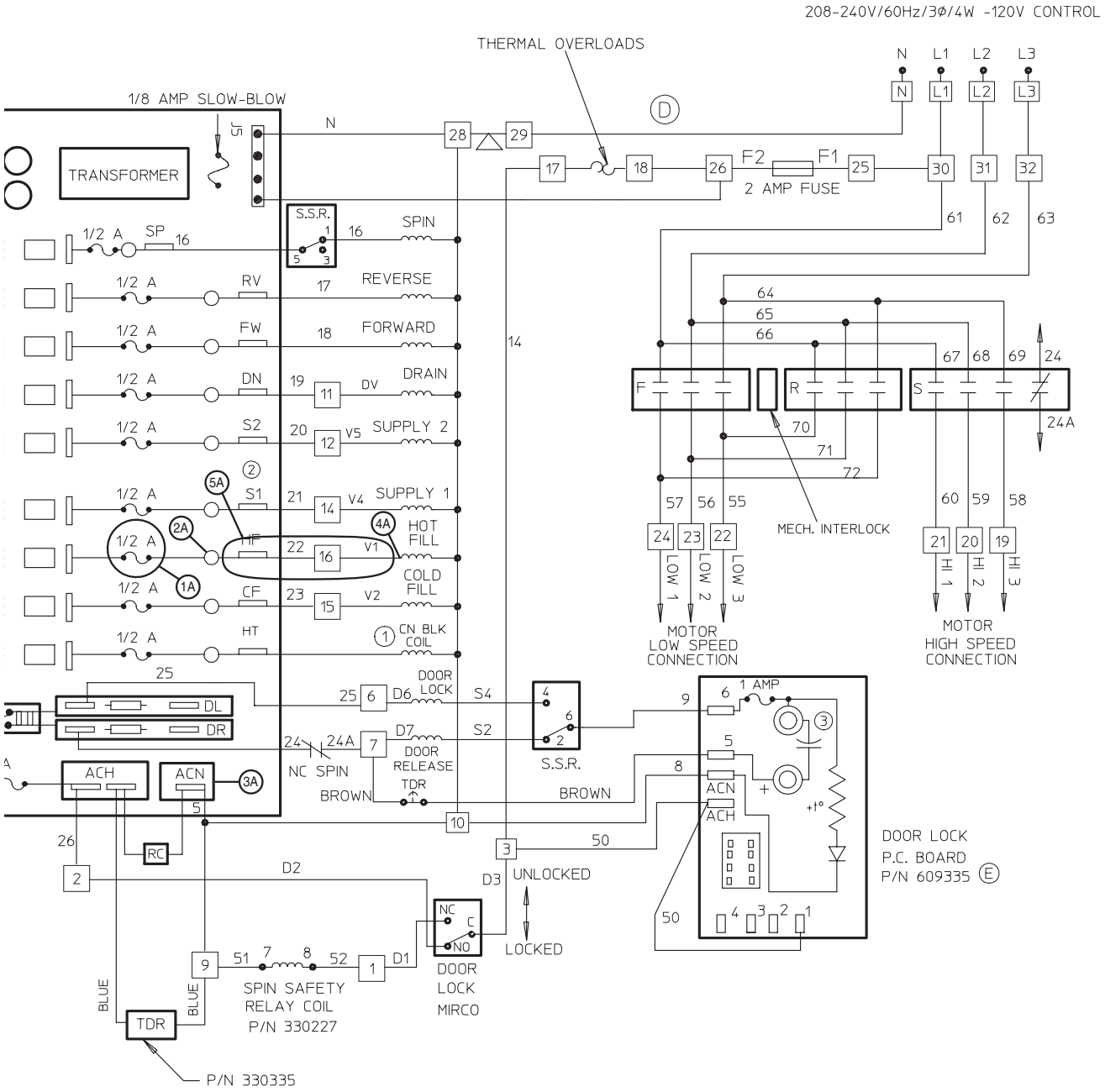
No Hot Fill Analysis (Sheet 2 of 2)



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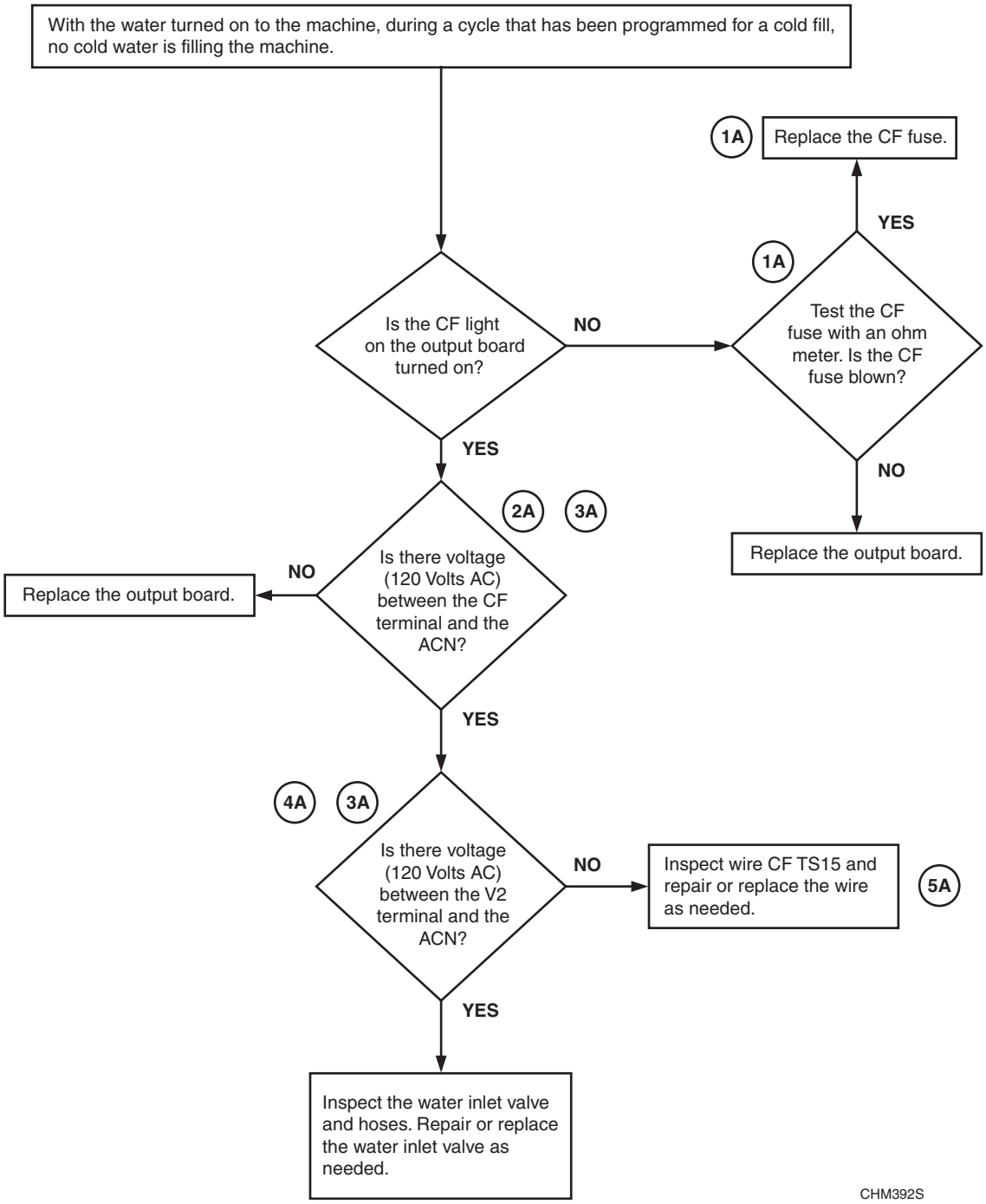
3. No Cold Fill Analysis (OPL)


With the water turned on to the machine, during a cycle that has been programmed for a cold fill, no cold water is filling the machine.
Is the CF light on the output board turned on?
NO
YES
1A
Test the CF fuse with an ohm meter. Is the CF fuse blown?
YES
1A
Replace the CF fuse.
NO
Replace the output board.
2A
3A
Is there voltage (120 Volts AC) between the CF terminal and the ACN?
NO
Replace the output board.
YES
4A
3A
Is there voltage (120 Volts AC) between the V2 terminal and the ACN?
NO
Inspect wire CF TS15 and repair or replace the wire as needed.
5A
YES
Inspect the water inlet valve and hoses. Repair or replace the water inlet valve as needed.
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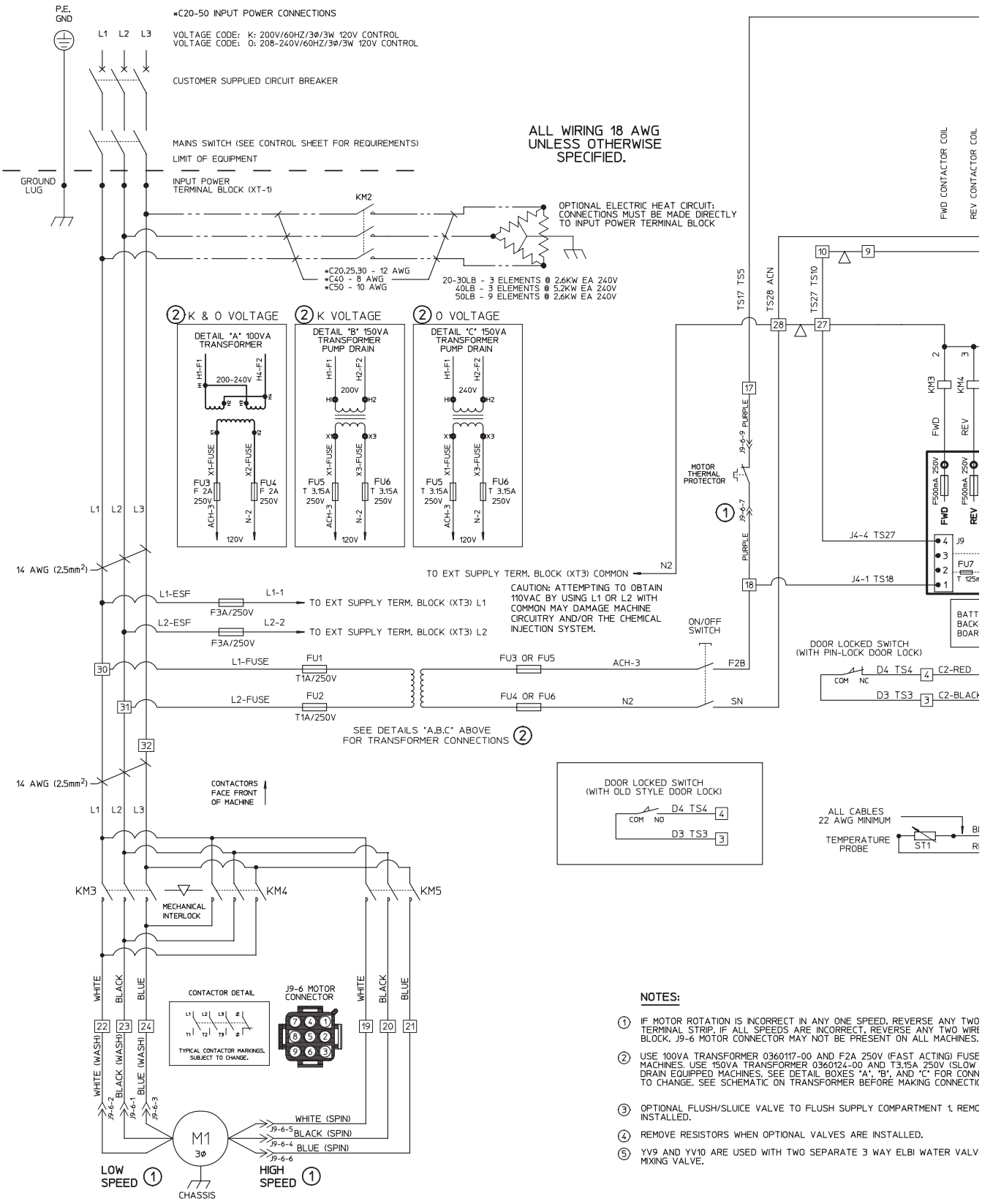
No Cold Fill Analysis (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
14 AWG (2.5mm²)
L1-ESF
L1-1
F3A/250V
TO EXT SUPPLY TERM. BLOCK (XT3) L1
L2-ESF
L2-2
TO EXT SUPPLY TERM. BLOCK (XT3) L2
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
N2
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
L1-FUSE
FU1
T1A/250V
L2-FUSE
FU2
T1A/250V
FU3 OR FU5
FU4 OR FU6
ACH-3
N2
F2B
SN
ON/OFF SWITCH
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
KM3
KM4
KM5
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
WHITE
BLACK
BLUE
WHITE (WASH)
BLACK (WASH)
BLUE (WASH)
M1
3Ø
CHASSIS
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
LOW SPEED 1
HIGH SPEED 1
MOTOR THERMAL PROTECTOR
PURPLE
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
D4 TS4
D3 TS3
C2-RED
C2-BLACK
COM
NC
NO
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
ST1
FWD CONTACTOR COIL
REV CONTACTOR COIL
TS17 TS5
TS28 ACN
TS27 TS10
J4-4 TS27
J4-1 TS18
J9
FU7
T 125m
F500mA 250V
FWD
REV
BATT BACK BOAR
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTIC
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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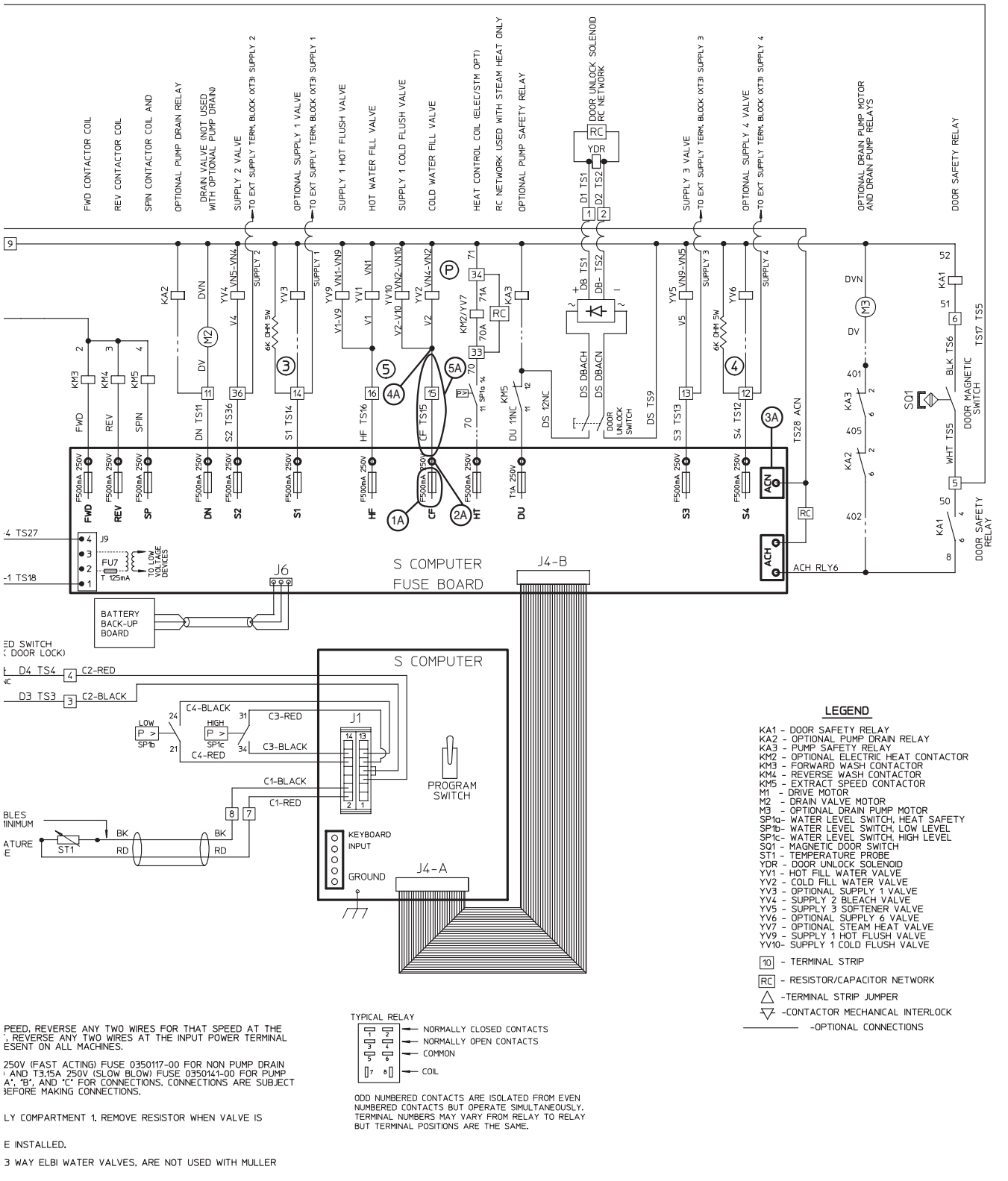
No Cold Fill Analysis (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
ACH RLY6
DOOR MAGNETIC SWITCH
DOOR SAFETY RELAY
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
PEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
, REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
ESENT ON ALL MACHINES.
250V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
BEFORE MAKING CONNECTIONS.
LY COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
E INSTALLED.
3 WAY ELBI WATER VALVES. ARE NOT USED WITH MULLER

CHM393S
607072(P)

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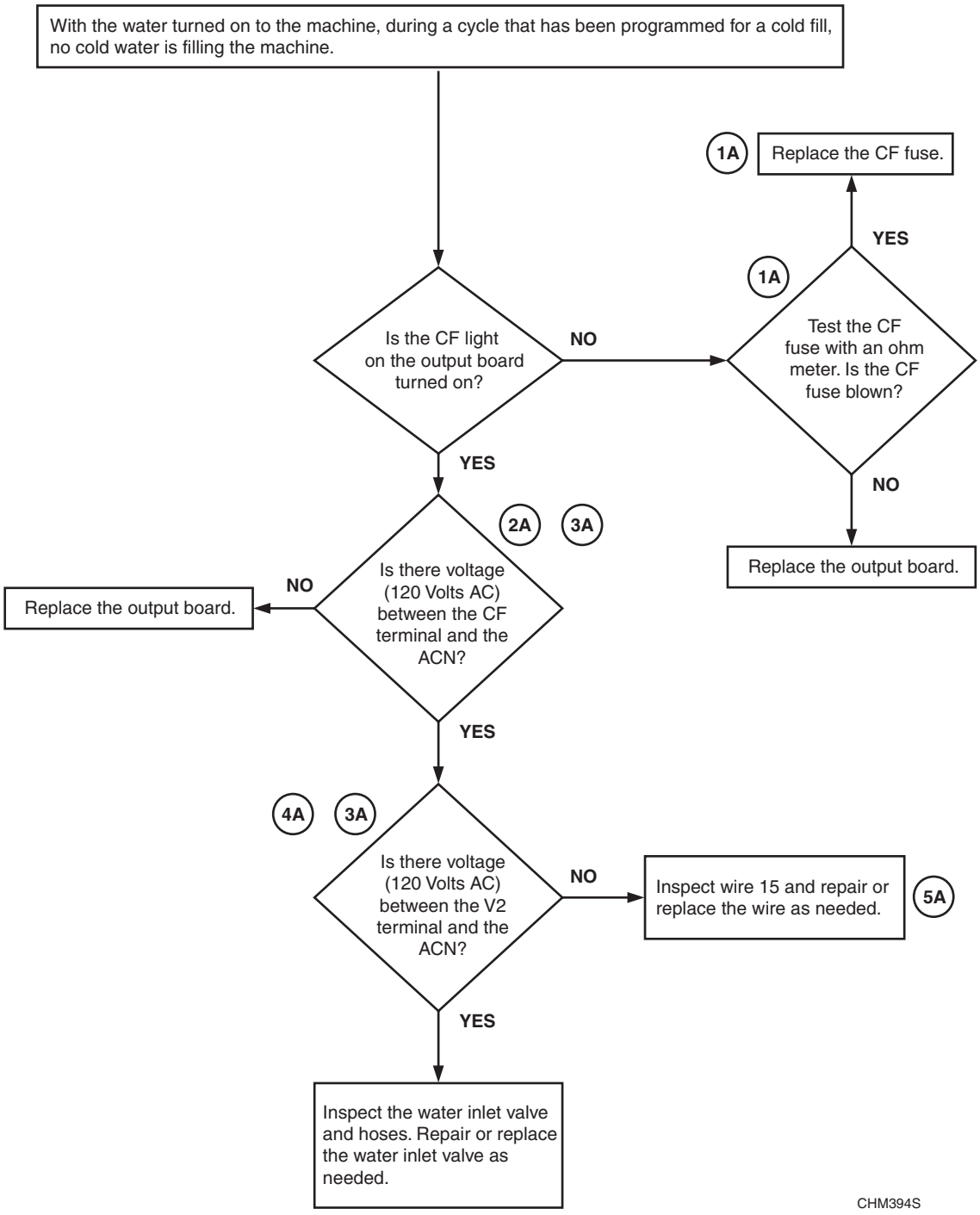
4. No Cold Fill Analysis (Coin)


With the water turned on to the machine, during a cycle that has been programmed for a cold fill, no cold water is filling the machine.
Is the CF light on the output board turned on?
NO
1A
Test the CF fuse with an ohm meter. Is the CF fuse blown?
YES
1A
Replace the CF fuse.
NO
Replace the output board.
YES
2A
3A
Is there voltage (120 Volts AC) between the CF terminal and the ACN?
NO
Replace the output board.
YES
4A
3A
Is there voltage (120 Volts AC) between the V2 terminal and the ACN?
NO
Inspect wire 15 and repair or replace the wire as needed.
5A
YES
Inspect the water inlet valve and hoses. Repair or replace the water inlet valve as needed.
CHM394S

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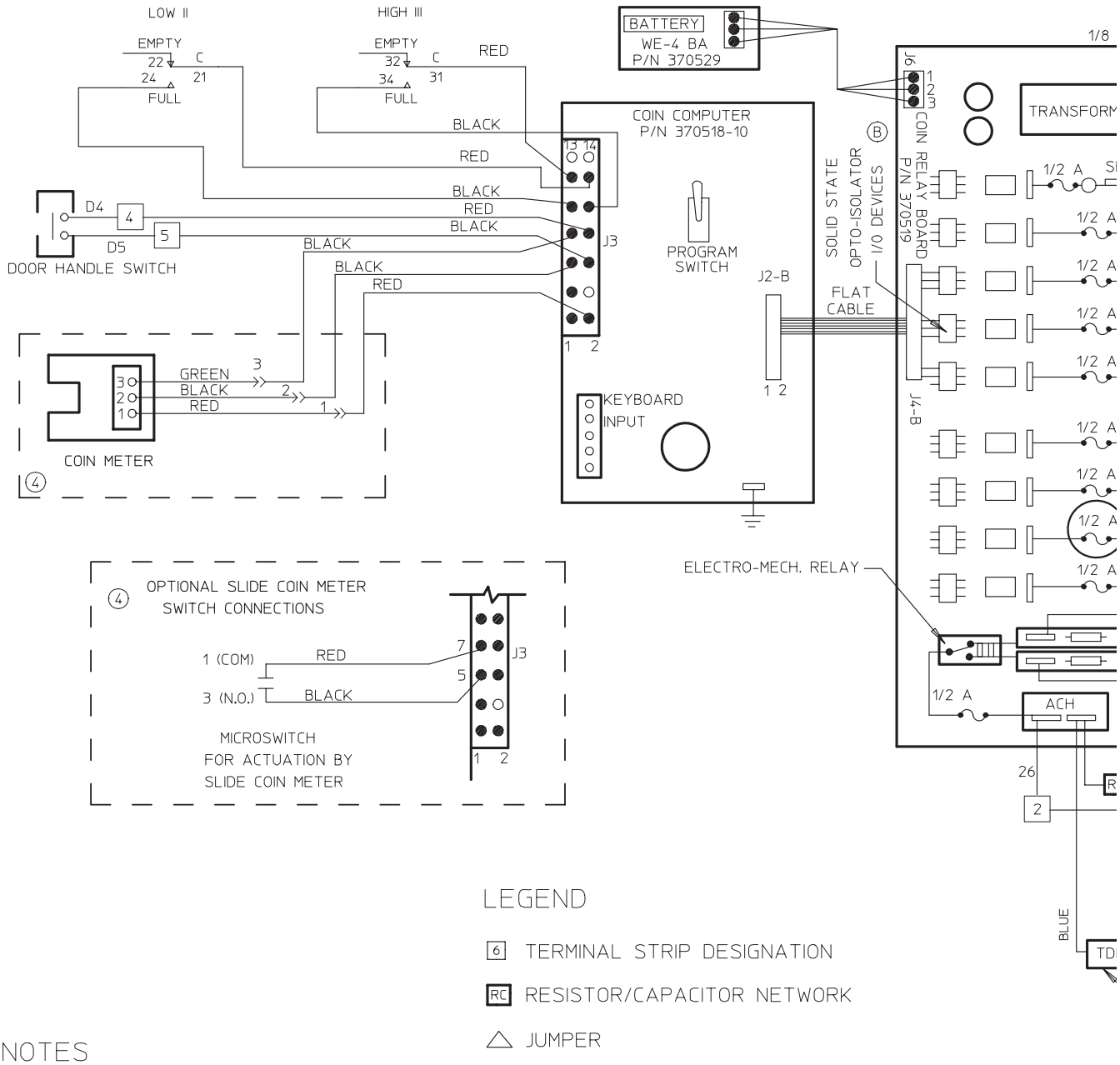
No Cold Fill Analysis (Sheet 1 of 2)



NOTES

1. CAN BE USED AS SUPPLY 3 OR COIN BLOCKING COIL.
2. SUPPLIES WILL COME ON WITH FILL.
3. CAPACITOR RATED 240uF, 450VDC.
4. OPTIONAL SLIDE COIN METER SWITCH CONNECTION

NOTE: Refer to the wiring diagram supplied with your machine.

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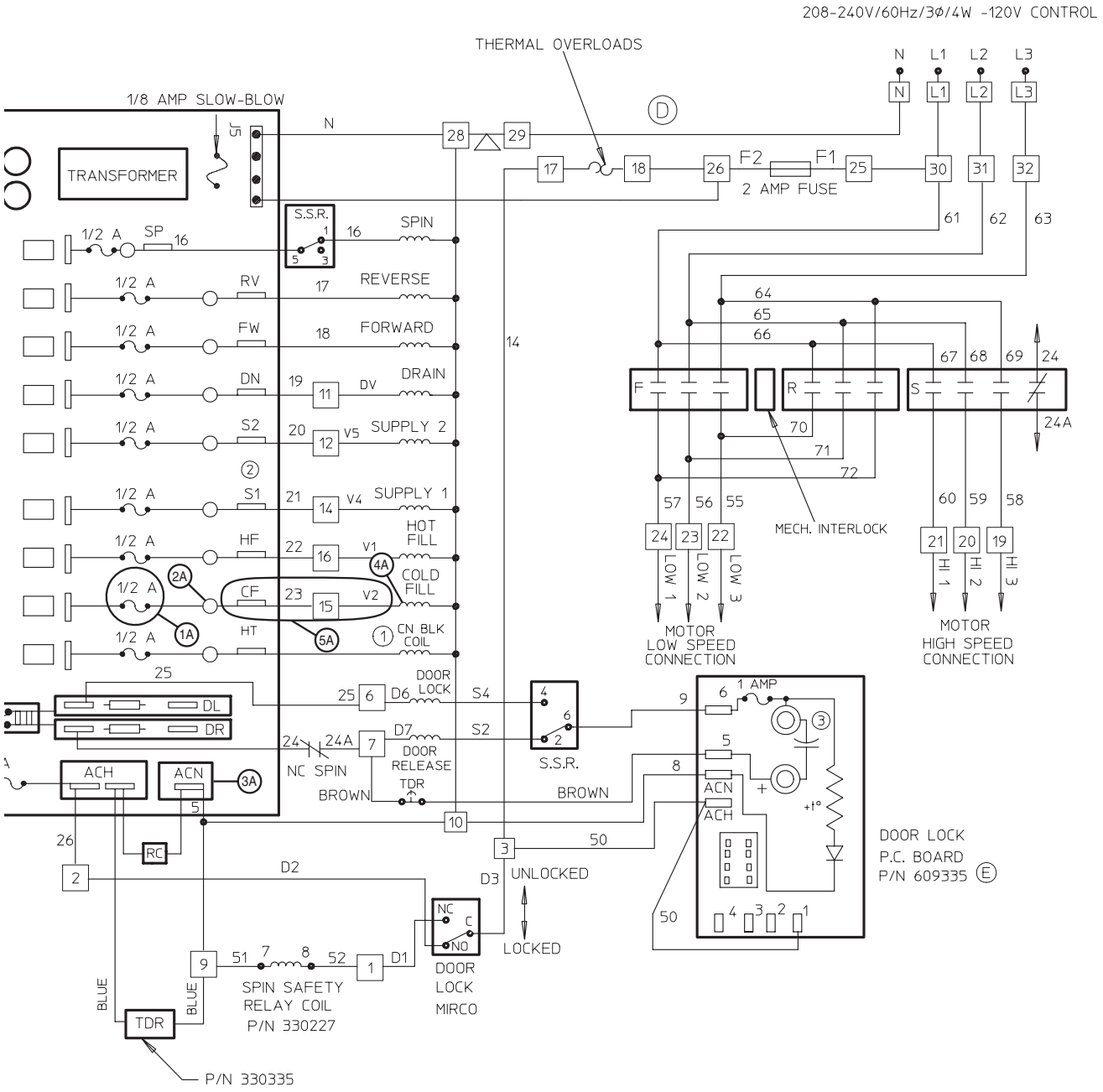
No Cold Fill Analysis (Sheet 2 of 2)



CHM395S
606909(F)

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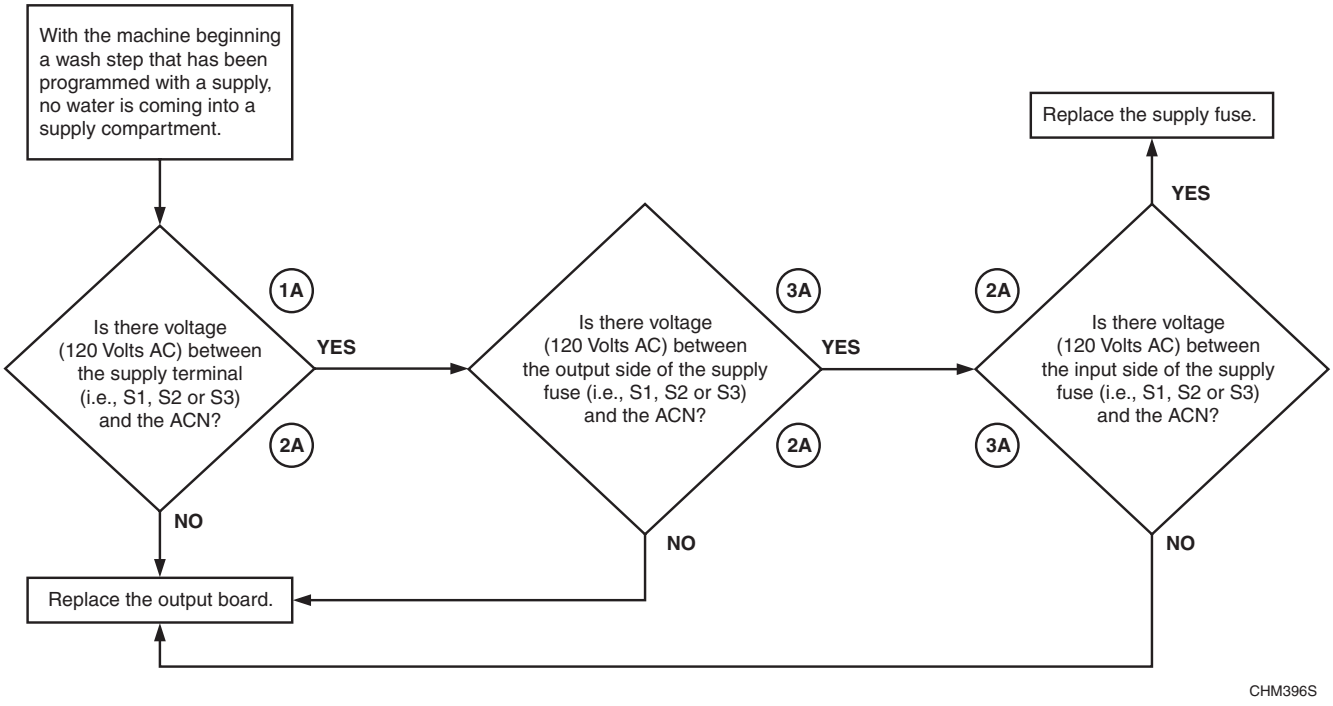
5. No Supply Fill Analysis (OPL)


With the machine beginning a wash step that has been programmed with a supply, no water is coming into a supply compartment.
Is there voltage (120 Volts AC) between the supply terminal (i.e., S1, S2 or S3) and the ACN?
1A
2A
YES
NO
Is there voltage (120 Volts AC) between the output side of the supply fuse (i.e., S1, S2 or S3) and the ACN?
3A
2A
YES
NO
Is there voltage (120 Volts AC) between the input side of the supply fuse (i.e., S1, S2 or S3) and the ACN?
2A
3A
YES
NO
Replace the supply fuse.
Replace the output board.
CHM396S

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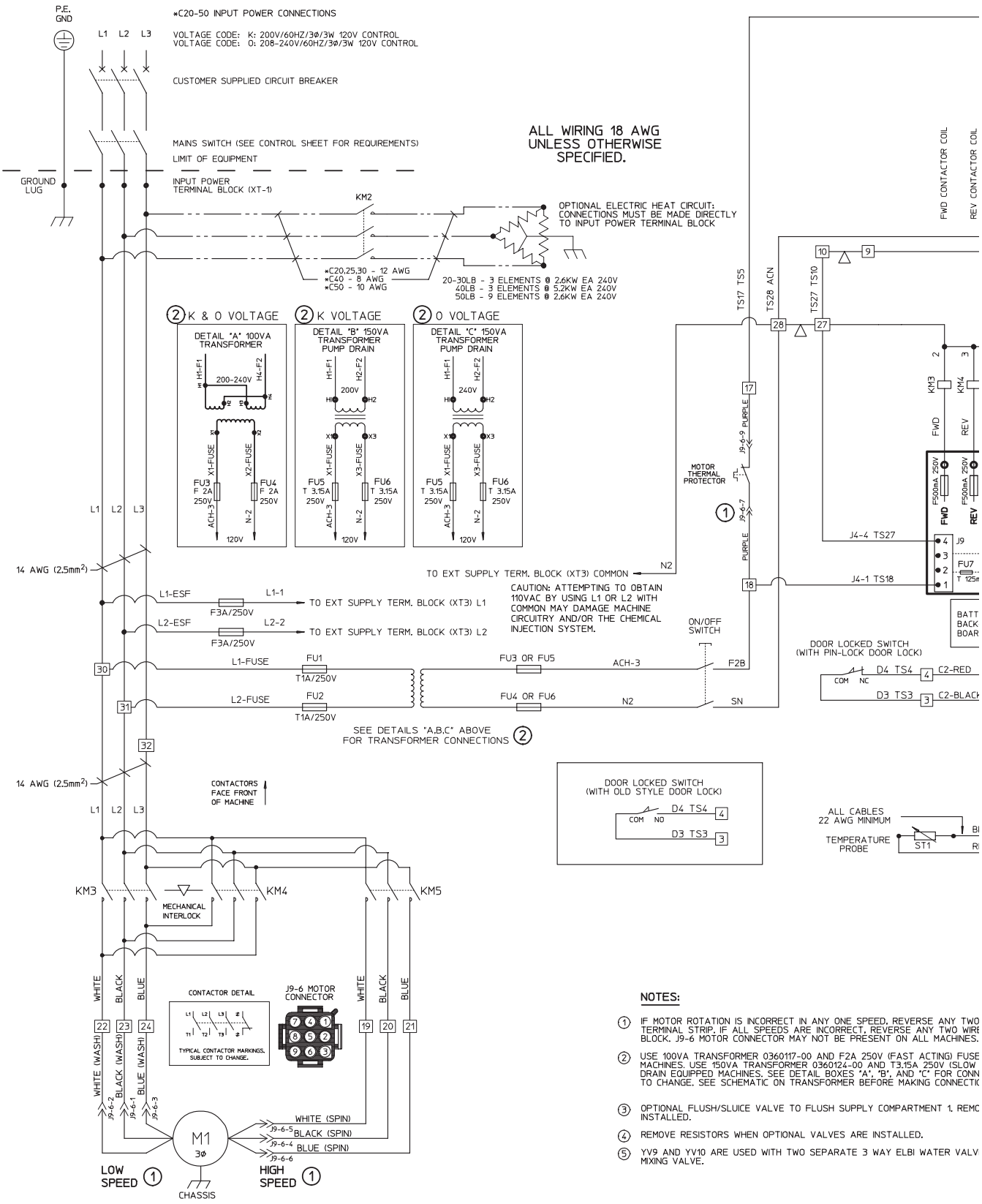
No Supply Fill Analysis (OPL) (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
MOTOR THERMAL PROTECTOR
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
ON/OFF SWITCH
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
LOW SPEED 1
HIGH SPEED 1
CHASSIS
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTIC
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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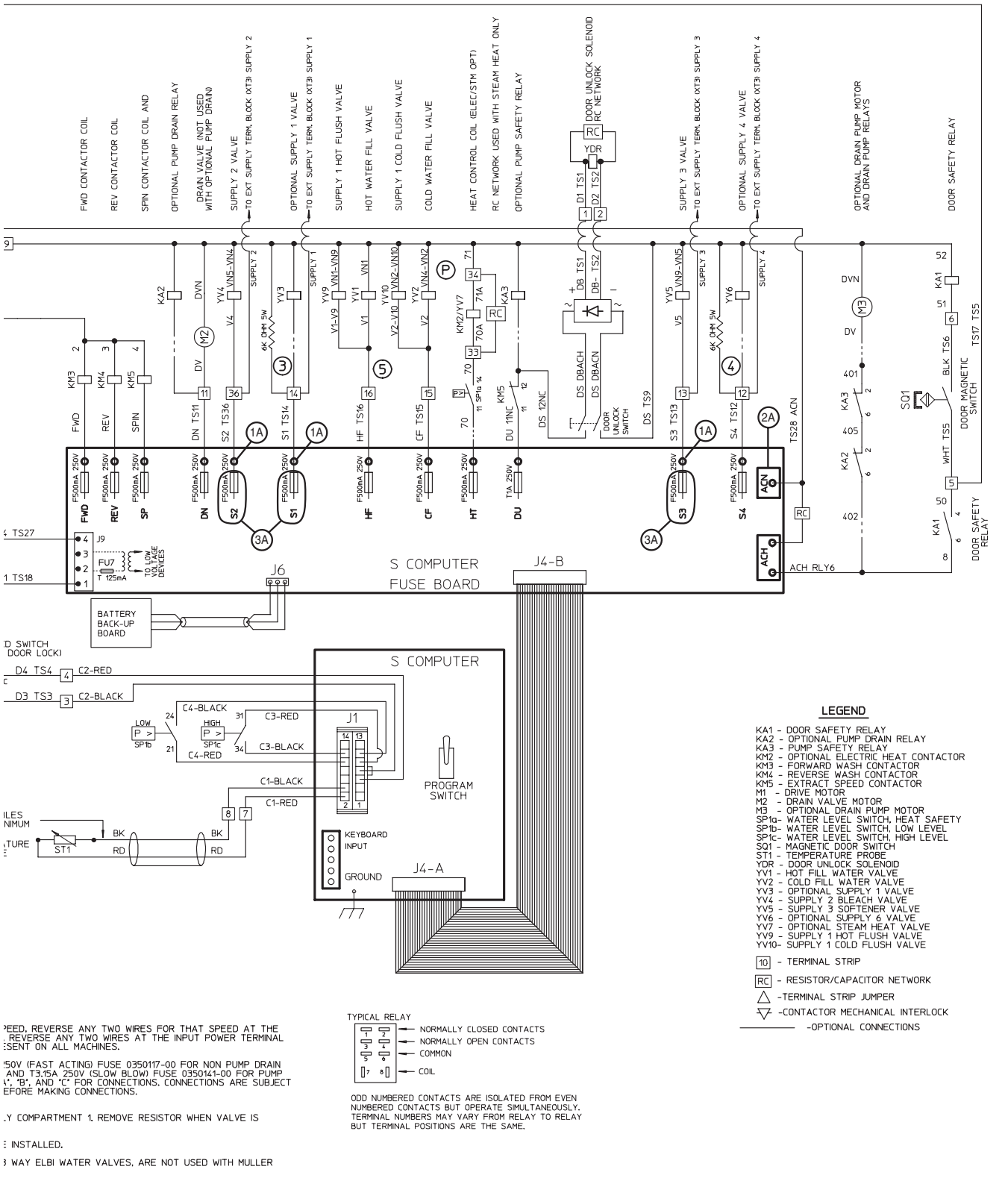
No Hot Supply 1 Fill Analysis (OPL) (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
DOOR MAGNETIC SWITCH
ACH RLY6
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS

PEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE . REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL ESENT ON ALL MACHINES.

50V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT EFORE MAKING CONNECTIONS.

.Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS

E INSTALLED.

3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

CHM397S
607072(P)

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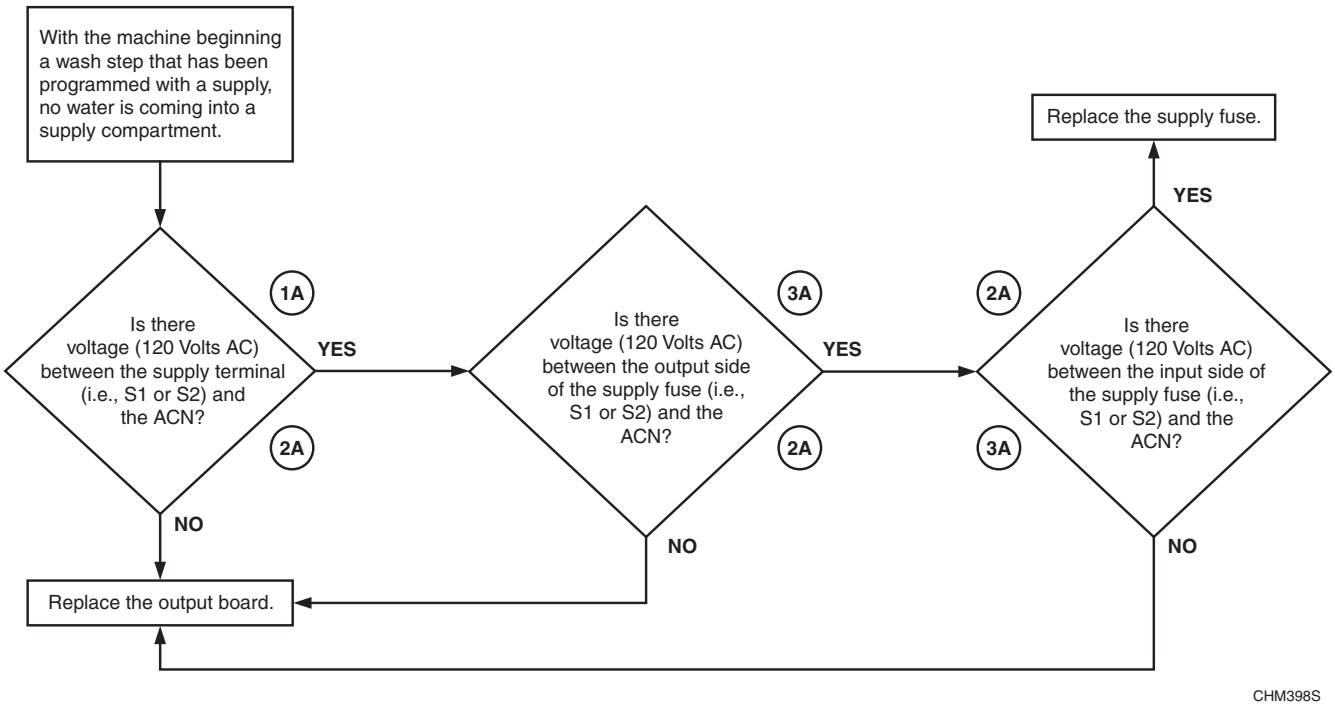
6. No Supply Fill Analysis (Coin)


With the machine beginning a wash step that has been programmed with a supply, no water is coming into a supply compartment.
Is there voltage (120 Volts AC) between the supply terminal (i.e., S1 or S2) and the ACN?
1A
2A
YES
NO
Is there voltage (120 Volts AC) between the output side of the supply fuse (i.e., S1 or S2) and the ACN?
3A
2A
YES
NO
Is there voltage (120 Volts AC) between the input side of the supply fuse (i.e., S1 or S2) and the ACN?
2A
3A
YES
NO
Replace the supply fuse.
Replace the output board.
CHM398S

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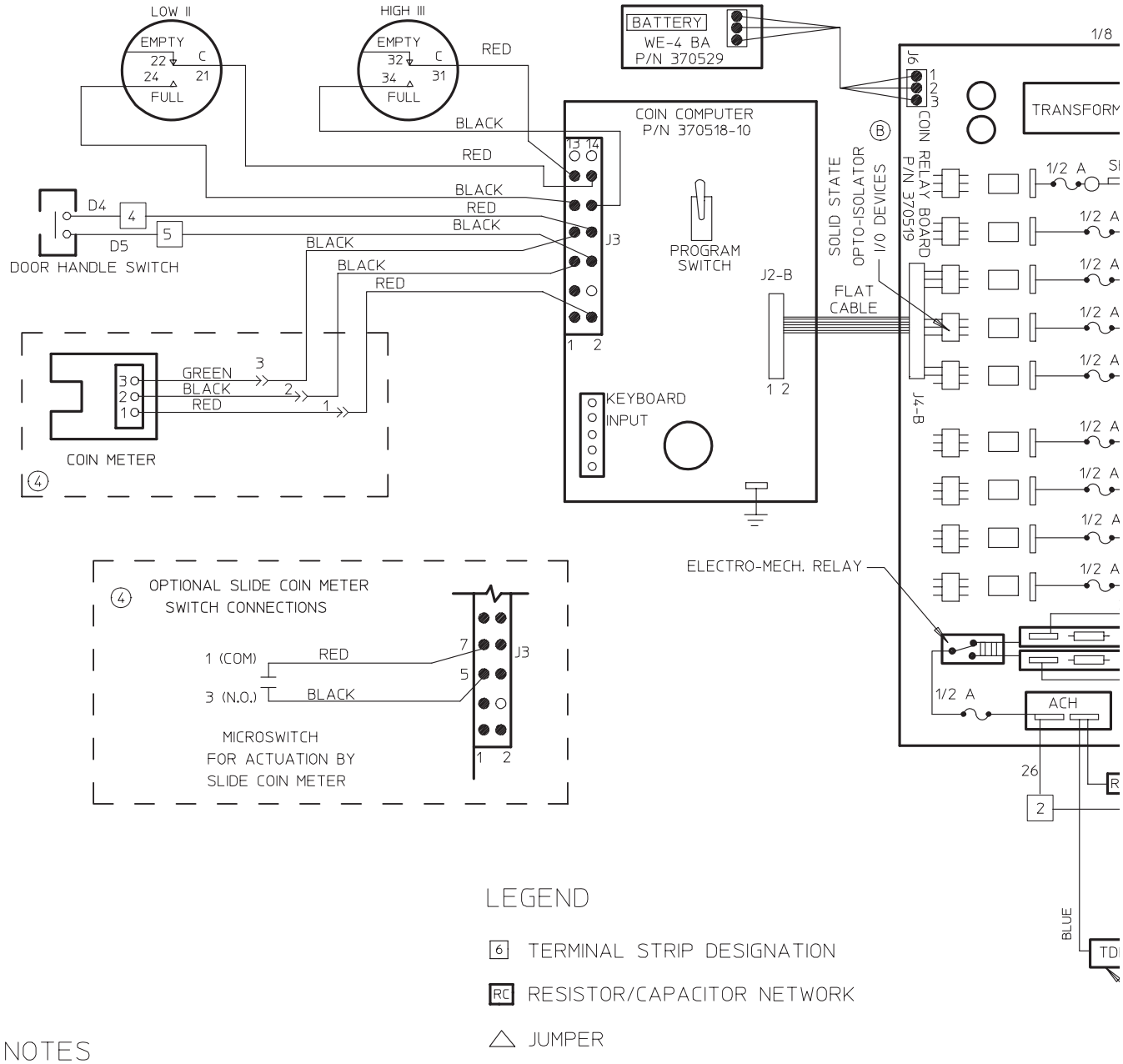
No Supply Fill Analysis (Coin) (Sheet 1 of 2)



LEGEND

6 TERMINAL STRIP DESIGNATION

RC RESISTOR/CAPACITOR NETWORK

△ JUMPER

NOTES

1. CAN BE USED AS SUPPLY 3 OR COIN BLOCKING COIL.
2. SUPPLIES WILL COME ON WITH FILL.
3. CAPACITOR RATED 240uF, 450VDC.
4. OPTIONAL SLIDE COIN METER SWITCH CONNECTION

NOTE: Refer to the wiring diagram supplied with your machine.

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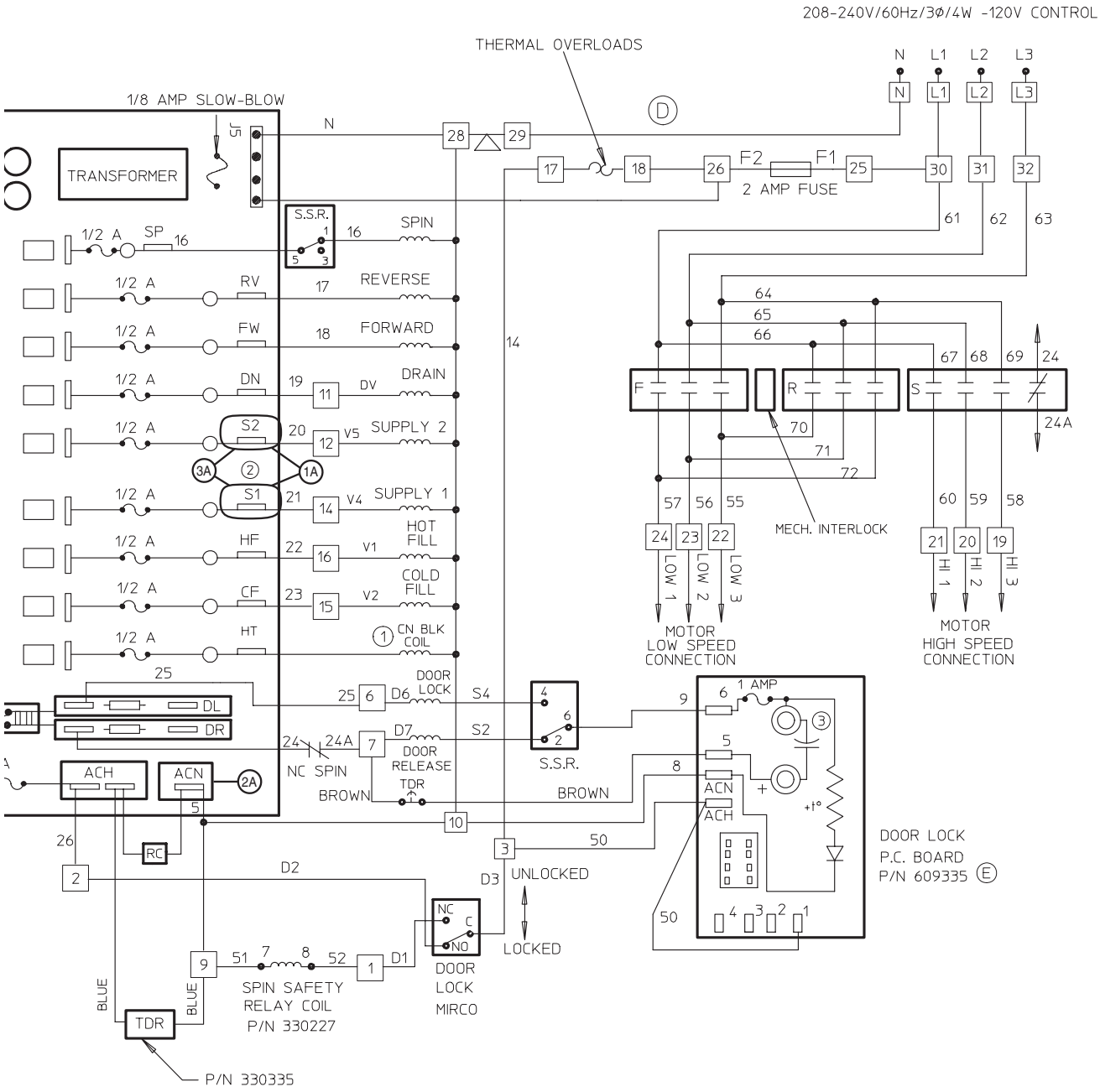
No Hot Supply 1 Fill Analysis (Coin) (Sheet 2 of 2)



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606909(F)

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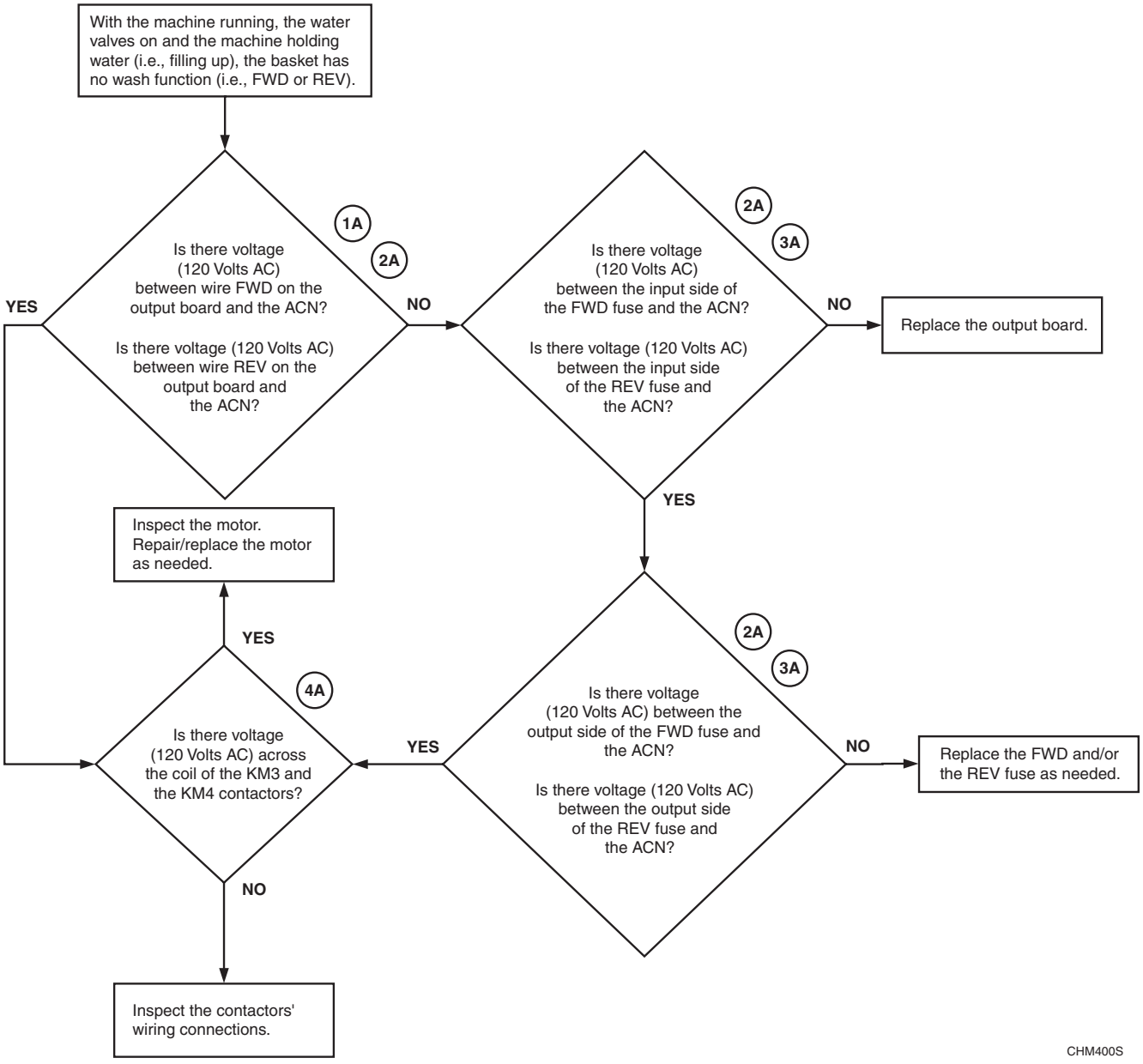
7. No Motor Function (FWD or REV)


With the machine running, the water valves on and the machine holding water (i.e., filling up), the basket has no wash function (i.e., FWD or REV).
1A
2A
Is there voltage (120 Volts AC) between wire FWD on the output board and the ACN?
Is there voltage (120 Volts AC) between wire REV on the output board and the ACN?
YES
NO
2A
3A
Is there voltage (120 Volts AC) between the input side of the FWD fuse and the ACN?
Is there voltage (120 Volts AC) between the input side of the REV fuse and the ACN?
NO
Replace the output board.
YES
Inspect the motor. Repair/replace the motor as needed.
YES
4A
Is there voltage (120 Volts AC) across the coil of the KM3 and the KM4 contactors?
NO
Inspect the contactors' wiring connections.
2A
3A
Is there voltage (120 Volts AC) between the output side of the FWD fuse and the ACN?
Is there voltage (120 Volts AC) between the output side of the REV fuse and the ACN?
YES
NO
Replace the FWD and/or the REV fuse as needed.
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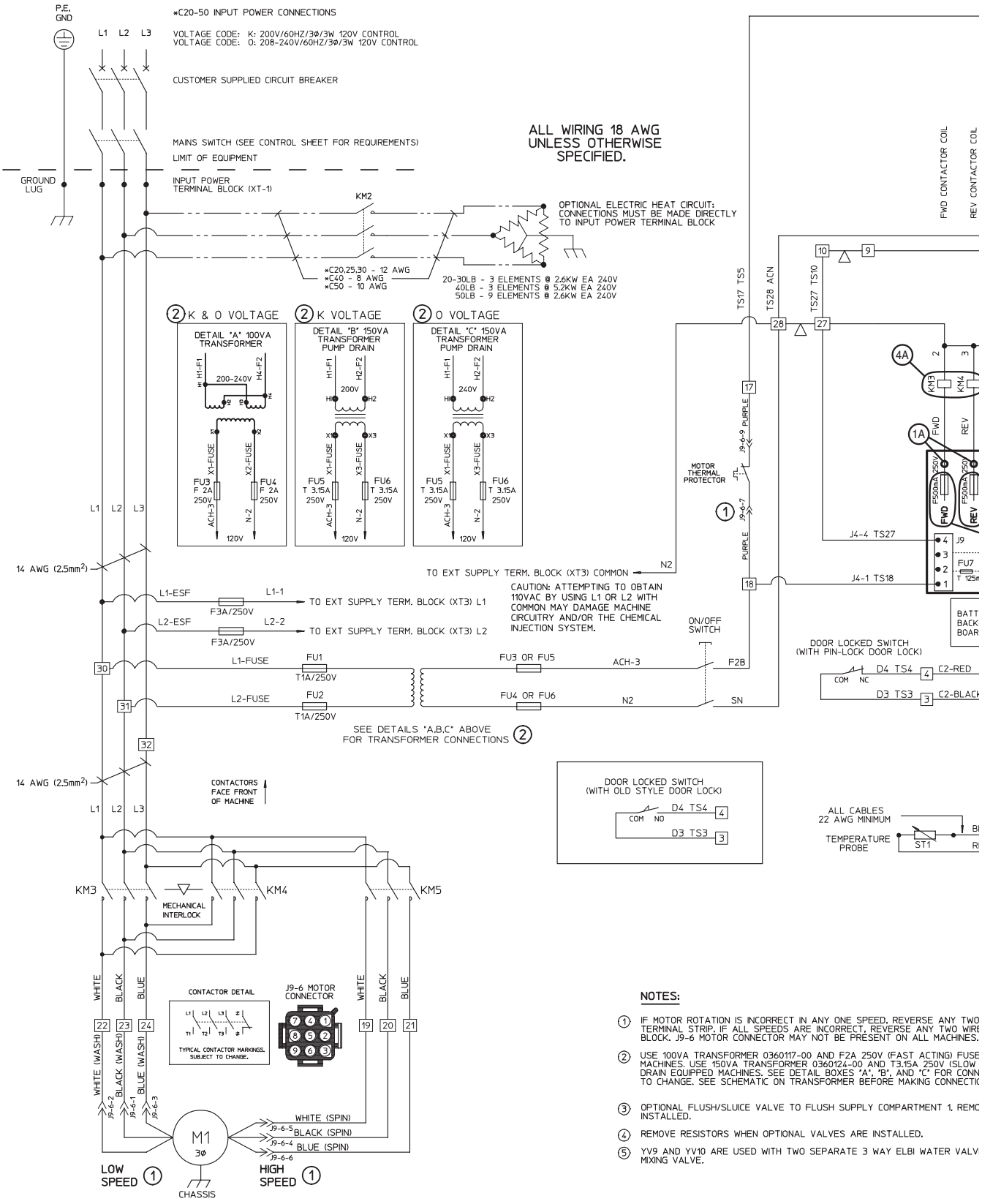
No Motor Function (FWD or REV) (Sheet 1 of 2)


P.E. GND
L1 L2 L3
*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
GROUND LUG
INPUT POWER TERMINAL BLOCK (XT-1)
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
KM2
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
200-240V
240V
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
120V
14 AWG (2.5mm²)
L1-ESF
L1-1
F3A/250V
TO EXT SUPPLY TERM. BLOCK (XT3) L1
L2-ESF
L2-2
TO EXT SUPPLY TERM. BLOCK (XT3) L2
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
N2
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
L1-FUSE
FU1
T1A/250V
L2-FUSE
FU2
T1A/250V
FU3 OR FU5
FU4 OR FU6
ACH-3
N2
F2B
SN
ON/OFF SWITCH
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
KM3
KM4
KM5
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
WHITE
BLACK
BLUE
WHITE (WASH)
BLACK (WASH)
BLUE (WASH)
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
M1
3Ø
CHASSIS
LOW SPEED 1
HIGH SPEED 1
MOTOR THERMAL PROTECTOR
PURPLE
FWD CONTACTOR COIL
REV CONTACTOR COIL
TS17 TS5
TS28 ACN
TS27 TS10
J4-4 TS27
J4-1 TS18
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
D4 TS4
D3 TS3
C2-RED
C2-BLACK
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
ST1
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTI
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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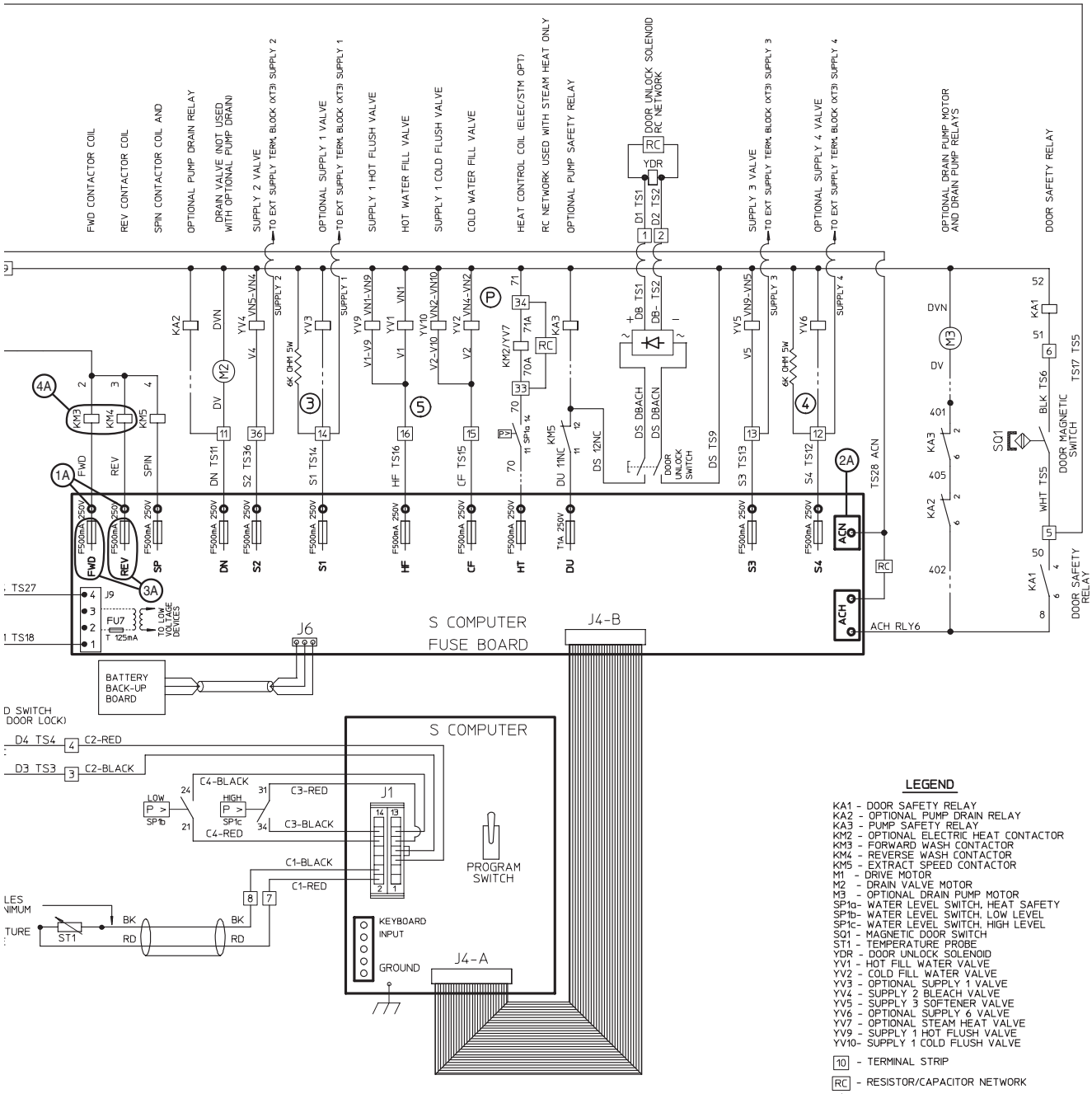
No Motor Function (FWD or REV) (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
ACH RLY6
DOOR SAFETY RELAY
DOOR MAGNETIC SWITCH
DOOR UNLOCK SWITCH
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 4 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.

EED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL SENT ON ALL MACHINES.

50V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP ', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT EFORE MAKING CONNECTIONS.

Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS

INSTALLED.

WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

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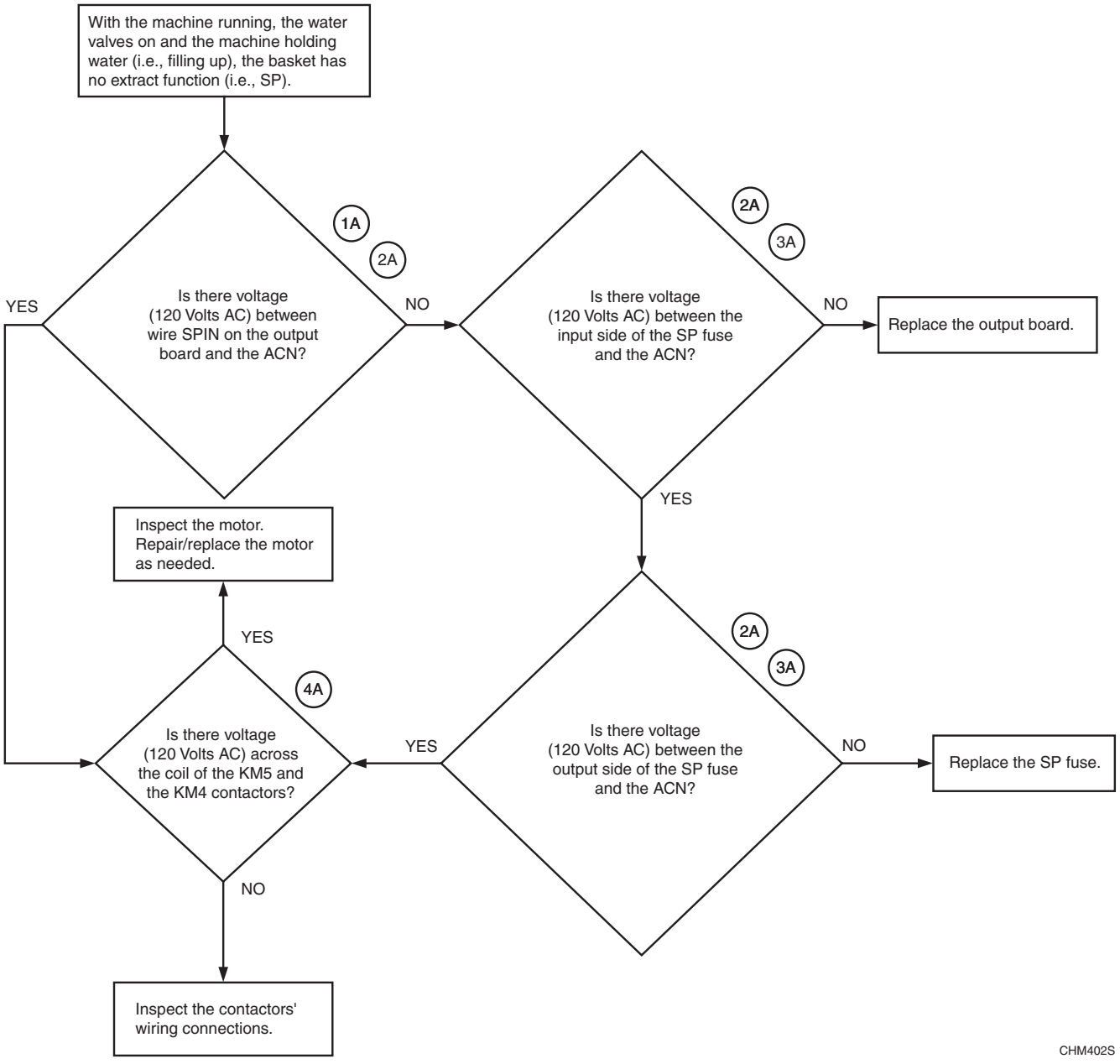
8. No Motor Function (SP)


With the machine running, the water valves on and the machine holding water (i.e., filling up), the basket has no extract function (i.e., SP).
1A
2A
Is there voltage (120 Volts AC) between wire SPIN on the output board and the ACN?
YES
NO
2A
3A
Is there voltage (120 Volts AC) between the input side of the SP fuse and the ACN?
NO
Replace the output board.
YES
Inspect the motor. Repair/replace the motor as needed.
YES
4A
Is there voltage (120 Volts AC) across the coil of the KM5 and the KM4 contactors?
NO
Inspect the contactors' wiring connections.
YES
2A
3A
Is there voltage (120 Volts AC) between the output side of the SP fuse and the ACN?
NO
Replace the SP fuse.
CHM402S

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Please refer to the following 2 pages for wiring diagram information.

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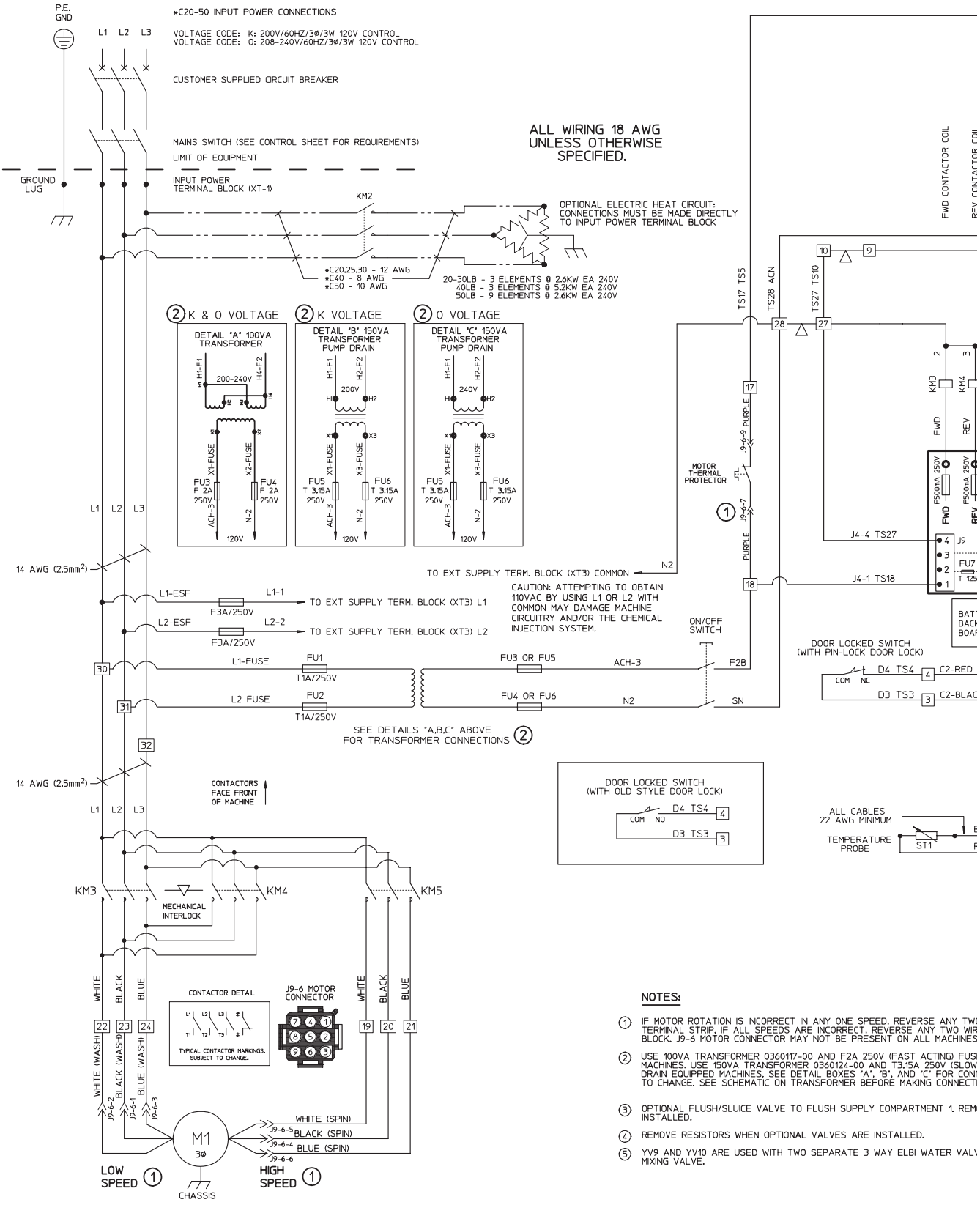
No Motor Function (SP) (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
14 AWG (2.5mm²)
L1-ESF
L2-ESF
F3A/250V
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
L1-FUSE
L2-FUSE
FU1 T1A/250V
FU2 T1A/250V
FU3 OR FU5
FU4 OR FU6
ACH-3
N2
F2B
SN
ON/OFF SWITCH
MOTOR THERMAL PROTECTOR
PURPLE
J4-4 TS27
J4-1 TS18
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
D4 TS4
D3 TS3
C2-RED
C2-BLAC
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
KM3
KM4
KM5
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
WHITE
BLACK
BLUE
WHITE (WASH)
BLACK (WASH)
BLUE (WASH)
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
M1
3Ø
LOW SPEED 1
HIGH SPEED 1
CHASSIS
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
ST1
FWD CONTACTOR COIL
REV CONTACTOR COIL
FWD
REV
F500mA 250V
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIR BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUS MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTI
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REM INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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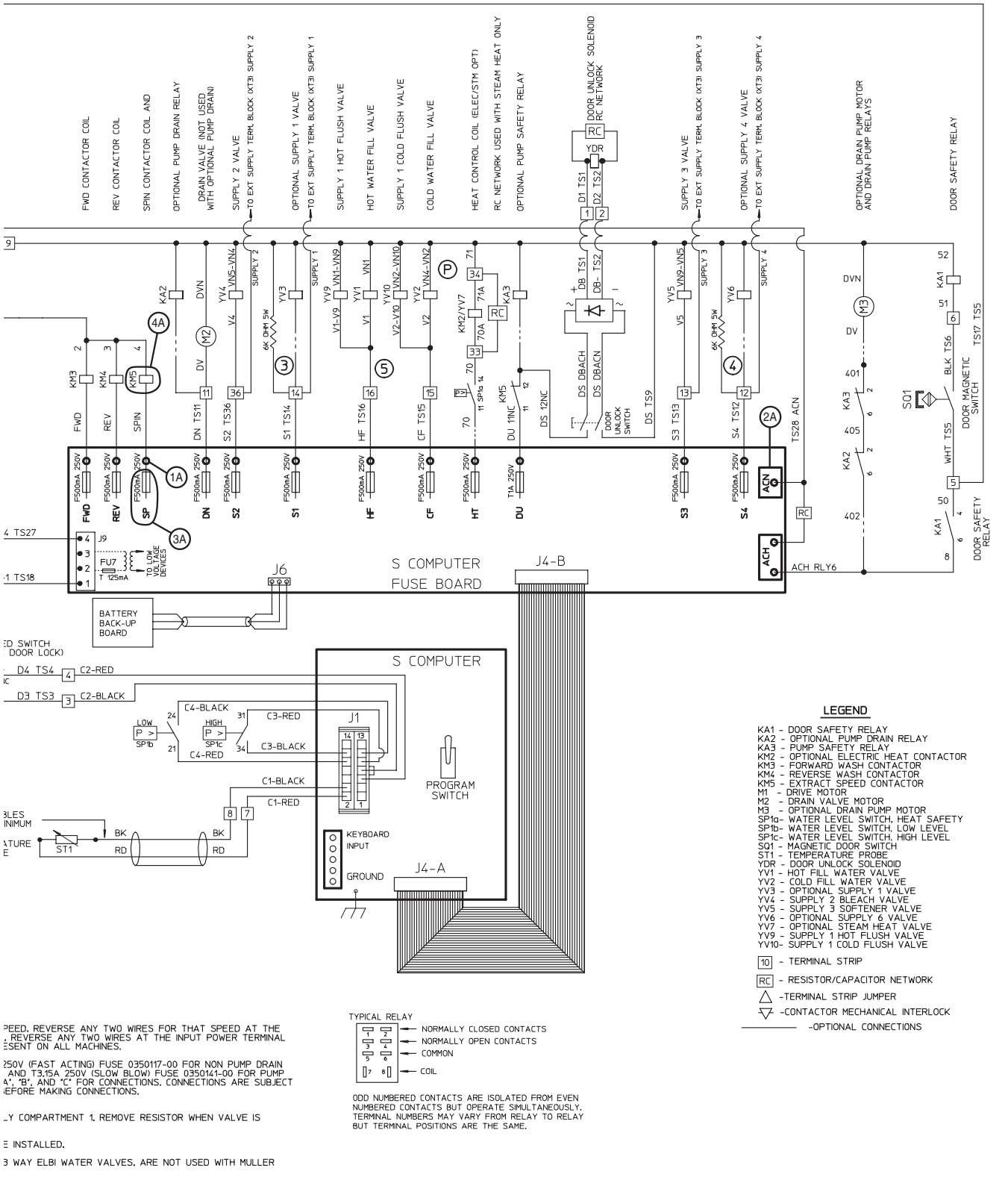
No Motor Function (SP) (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
DOOR MAGNETIC SWITCH
DOOR SAFETY RELAY
ACH RLY6
TS28 ACN
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
PEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
. REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
ESENT ON ALL MACHINES.
250V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
EFORE MAKING CONNECTIONS.
_Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
E INSTALLED.
3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

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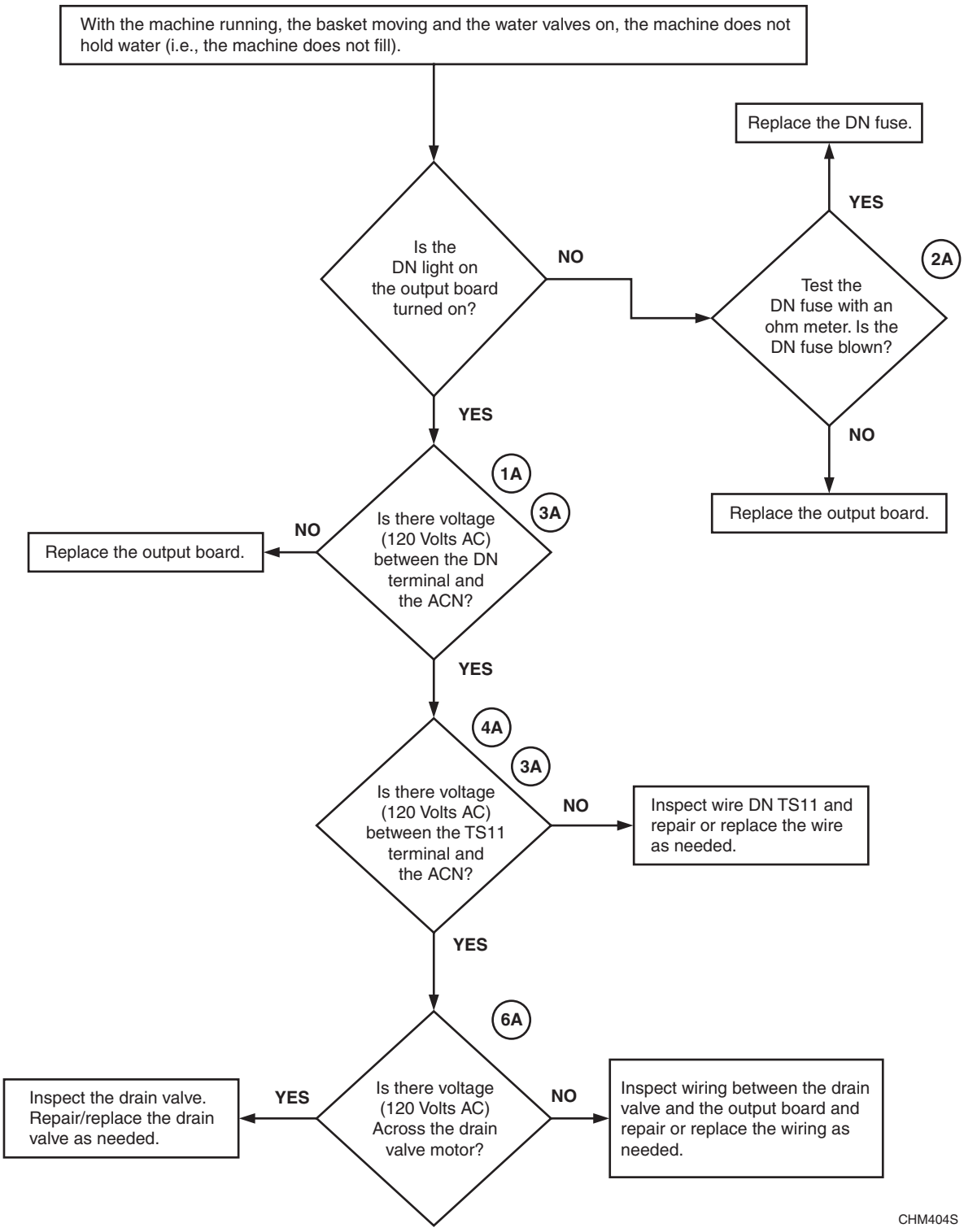
9. Drain Valve Malfunction


With the machine running, the basket moving and the water valves on, the machine does not hold water (i.e., the machine does not fill).
Is the DN light on the output board turned on?
NO
YES
Test the DN fuse with an ohm meter. Is the DN fuse blown?
2A
YES
Replace the DN fuse.
NO
Replace the output board.
YES
1A
3A
Is there voltage (120 Volts AC) between the DN terminal and the ACN?
NO
Replace the output board.
YES
4A
3A
Is there voltage (120 Volts AC) between the TS11 terminal and the ACN?
NO
Inspect wire DN TS11 and repair or replace the wire as needed.
YES
6A
Is there voltage (120 Volts AC) Across the drain valve motor?
YES
Inspect the drain valve. Repair/replace the drain valve as needed.
NO
Inspect wiring between the drain valve and the output board and repair or replace the wiring as needed.
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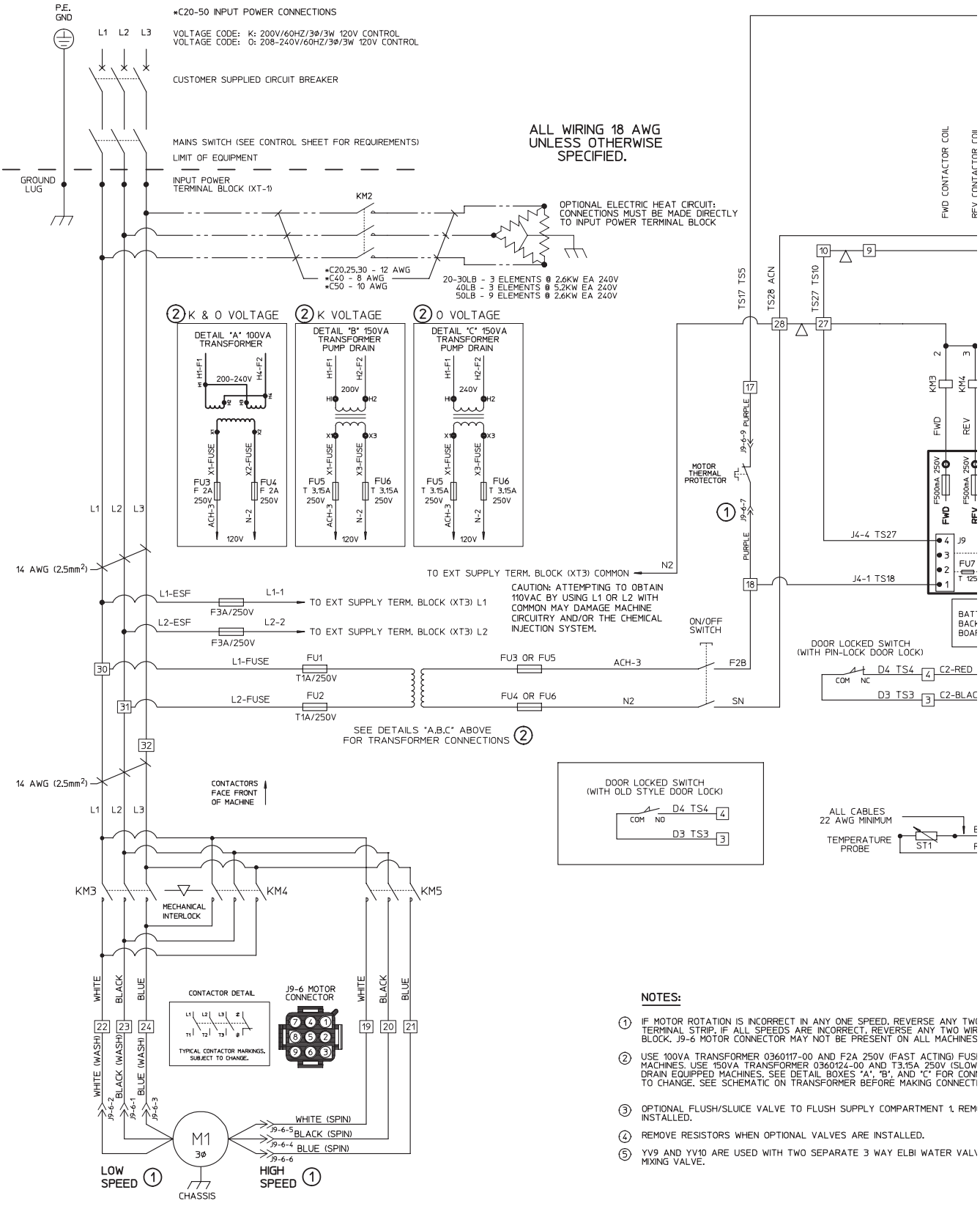
Drain Valve Malfunction (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
MOTOR THERMAL PROTECTOR
ON/OFF SWITCH
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
J9-6 MOTOR CONNECTOR
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
LOW SPEED
HIGH SPEED
CHASSIS
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TW(TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIR BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUS MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONI TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECT
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REM INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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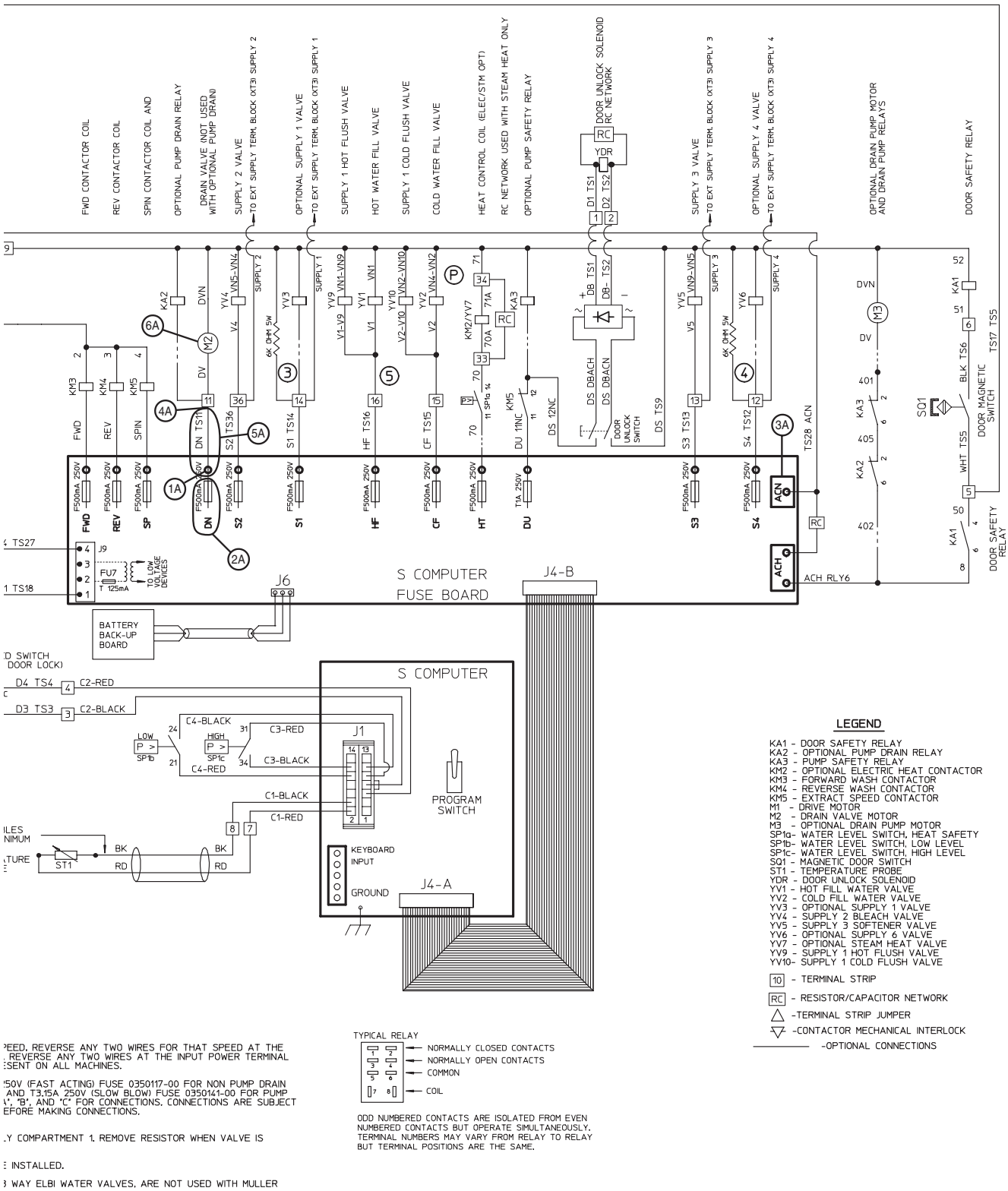
Drain Valve Malfunction (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
S COMPUTER
BATTERY BACK-UP BOARD
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
ACH RLY6
DOOR MAGNETIC SWITCH
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
EED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
SENT ON ALL MACHINES.
50V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
EFORE MAKING CONNECTIONS.
Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
INSTALLED.
3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

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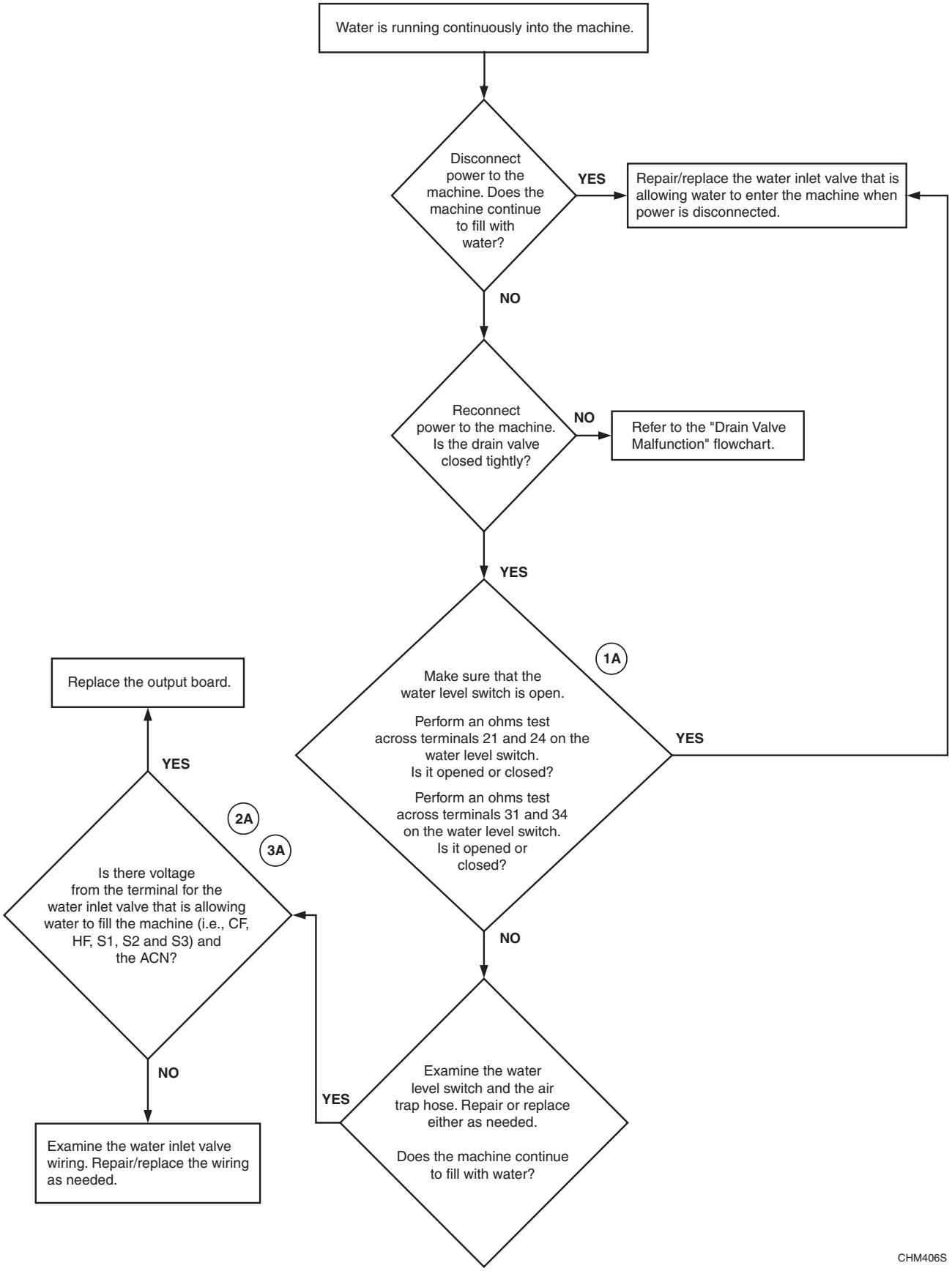
10. Overflow Analysis


Water is running continuously into the machine.
Disconnect power to the machine. Does the machine continue to fill with water?
YES
Repair/replace the water inlet valve that is allowing water to enter the machine when power is disconnected.
NO
Reconnect power to the machine. Is the drain valve closed tightly?
NO
Refer to the "Drain Valve Malfunction" flowchart.
YES
1A
Make sure that the water level switch is open.
Perform an ohms test across terminals 21 and 24 on the water level switch. Is it opened or closed?
YES
Perform an ohms test across terminals 31 and 34 on the water level switch. Is it opened or closed?
NO
Examine the water level switch and the air trap hose. Repair or replace either as needed.
Does the machine continue to fill with water?
YES
2A
3A
Is there voltage from the terminal for the water inlet valve that is allowing water to fill the machine (i.e., CF, HF, S1, S2 and S3) and the ACN?
YES
Replace the output board.
NO
Examine the water inlet valve wiring. Repair/replace the wiring as needed.
CHM406S

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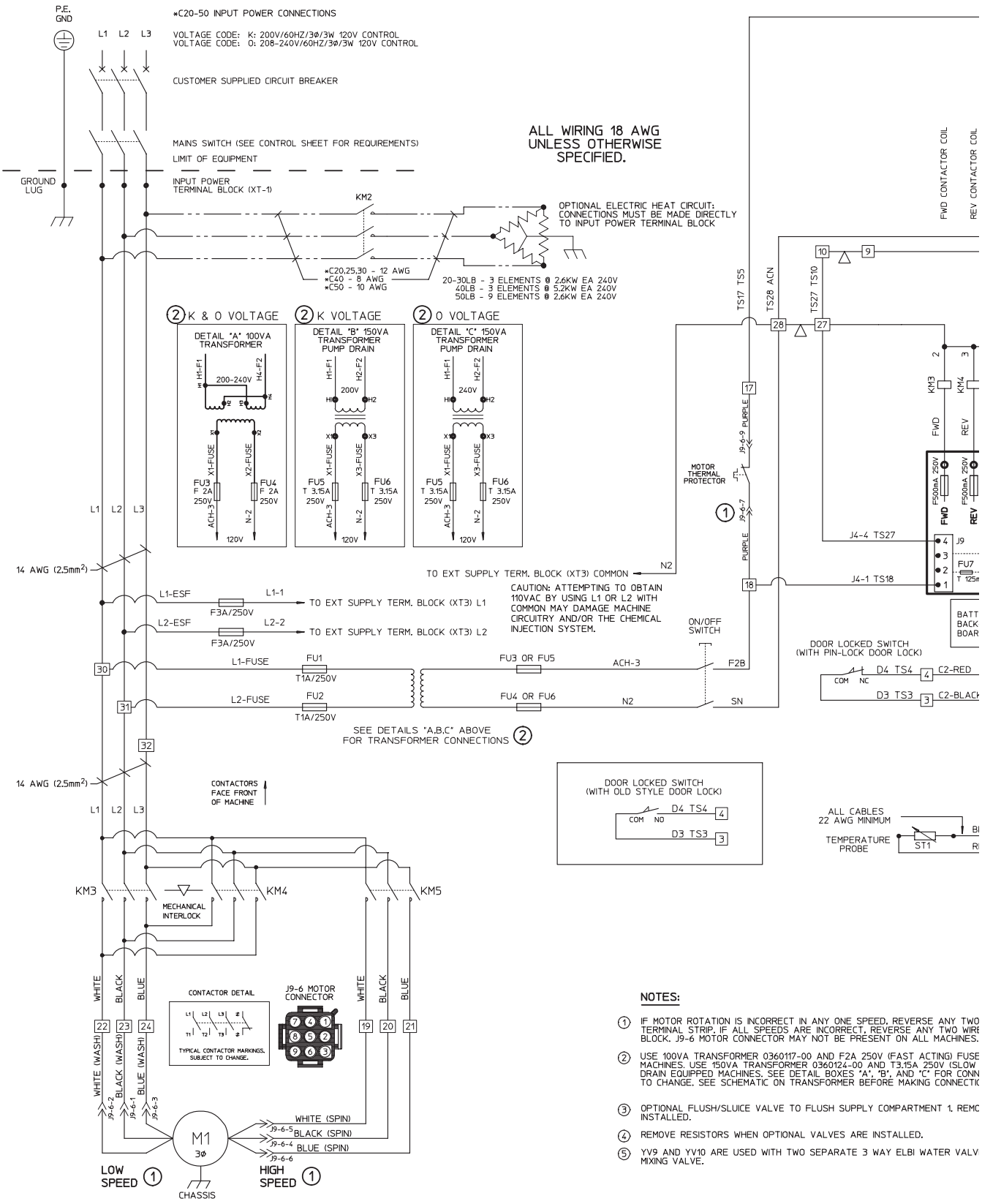
Overflow Analysis (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
F3A/250V
FU1 T1A/250V
FU2 T1A/250V
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
ON/OFF SWITCH
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
MOTOR THERMAL PROTECTOR
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
M1 3Ø
LOW SPEED 1
HIGH SPEED 1
CHASSIS
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
FWD CONTACTOR COIL
REV CONTACTOR COIL
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTIC
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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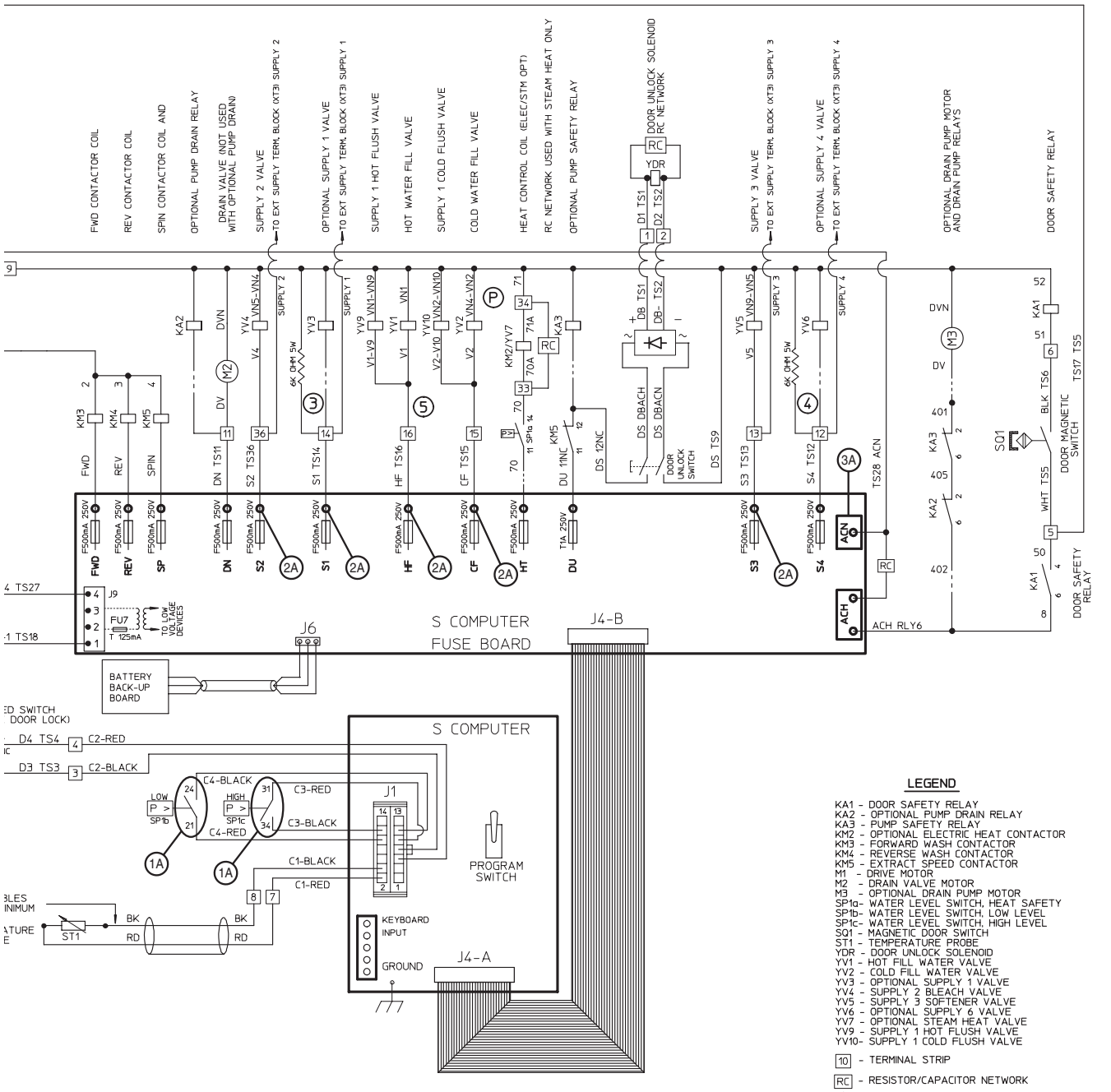
Overflow Analysis (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SO1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS

PEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
. REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
ESENT ON ALL MACHINES.

250V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
EFORE MAKING CONNECTIONS.

_Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS

E INSTALLED.

3 WAY ELBI WATER VALVES. ARE NOT USED WITH MULLER

CHM407S
607072(P)

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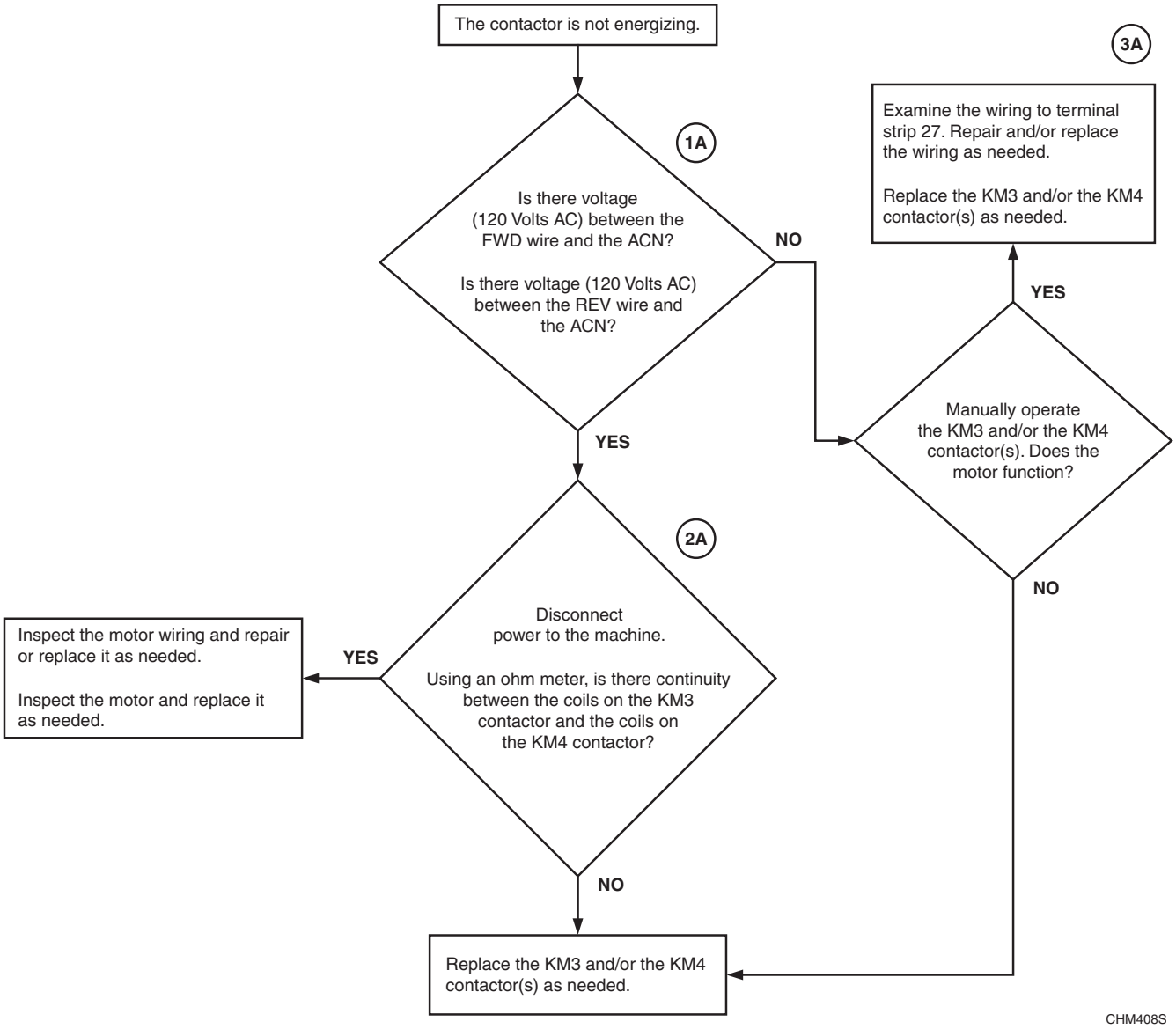
11. Contactor Analysis (FWD and REV)


The contactor is not energizing.
1A
Is there voltage (120 Volts AC) between the FWD wire and the ACN?
Is there voltage (120 Volts AC) between the REV wire and the ACN?
NO
YES
3A
Examine the wiring to terminal strip 27. Repair and/or replace the wiring as needed.
Replace the KM3 and/or the KM4 contactor(s) as needed.
YES
Manually operate the KM3 and/or the KM4 contactor(s). Does the motor function?
NO
2A
Disconnect power to the machine.
Using an ohm meter, is there continuity between the coils on the KM3 contactor and the coils on the KM4 contactor?
YES
Inspect the motor wiring and repair or replace it as needed.
Inspect the motor and replace it as needed.
NO
Replace the KM3 and/or the KM4 contactor(s) as needed.
CHM408S

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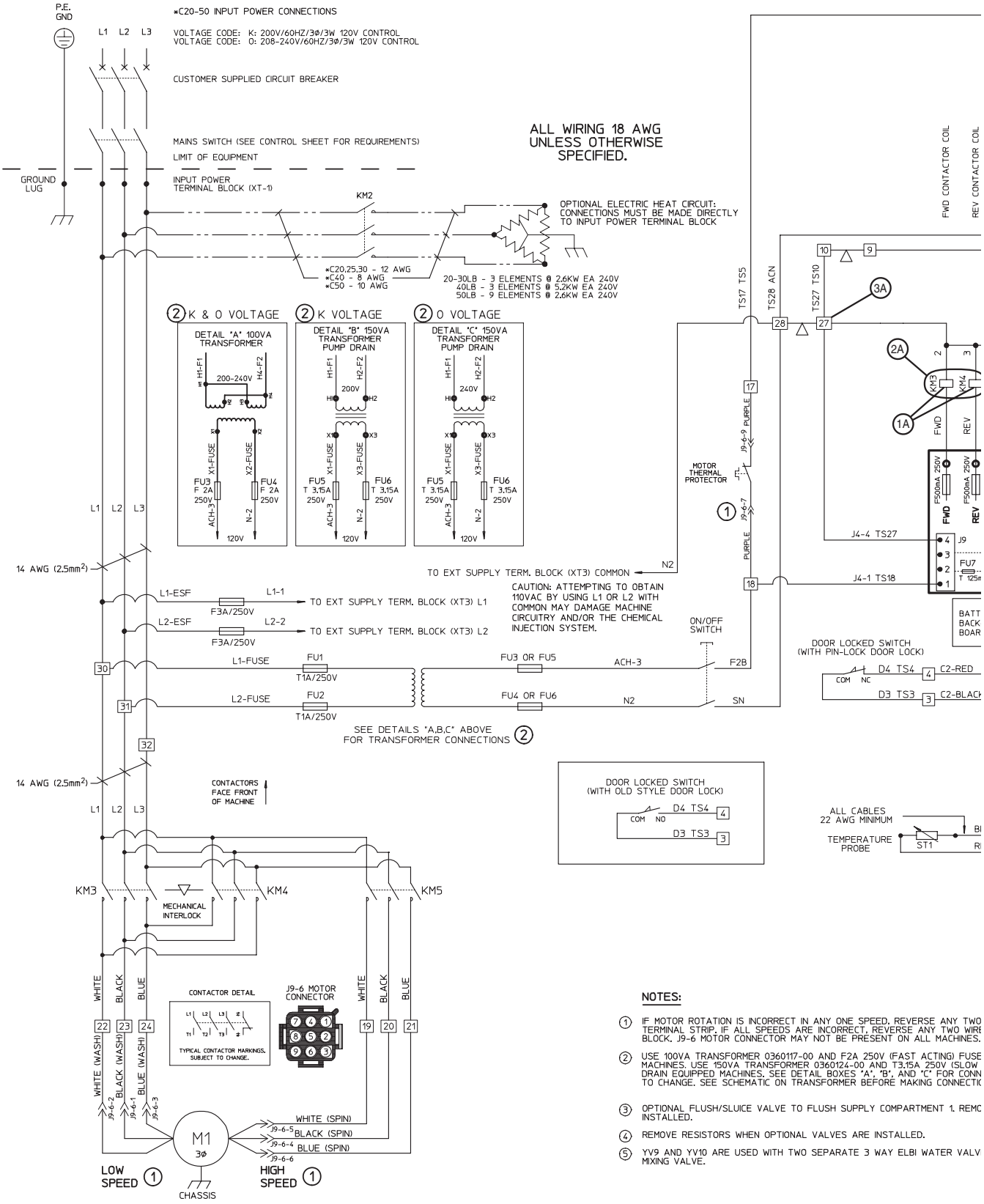
Contactor Analysis (FWD and REV) (Sheet 1 of 2)



NOTE: Refer to the wiring diagram supplied with your machine.

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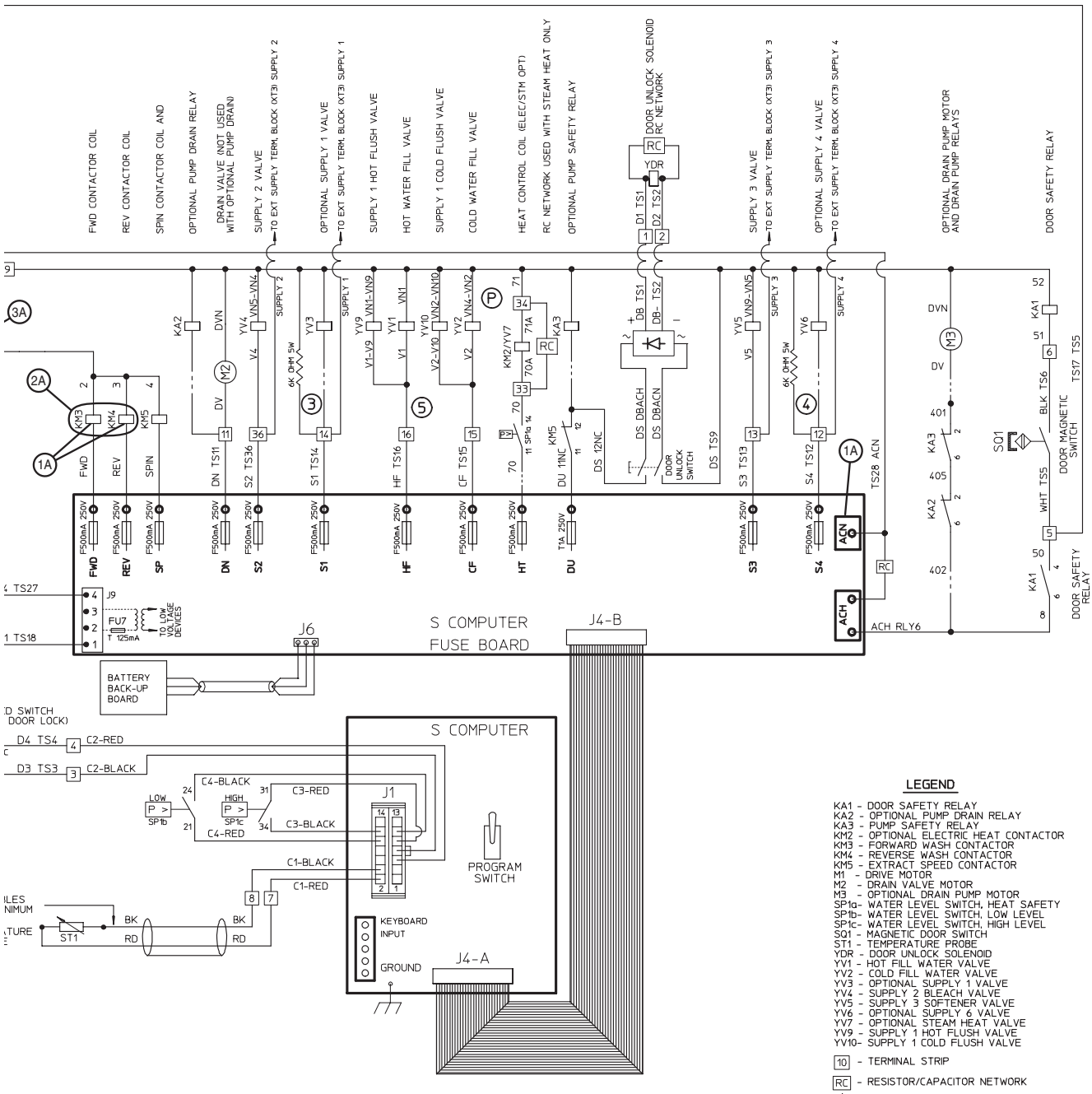
Contactor Analysis (FWD and REV) (Sheet 2 of 2)



LEGEND

KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 4 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS

PEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE . REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL ESENT ON ALL MACHINES.

50V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT EFORE MAKING CONNECTIONS.

.Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS

E INSTALLED.

3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

CHM409S
607072(P)

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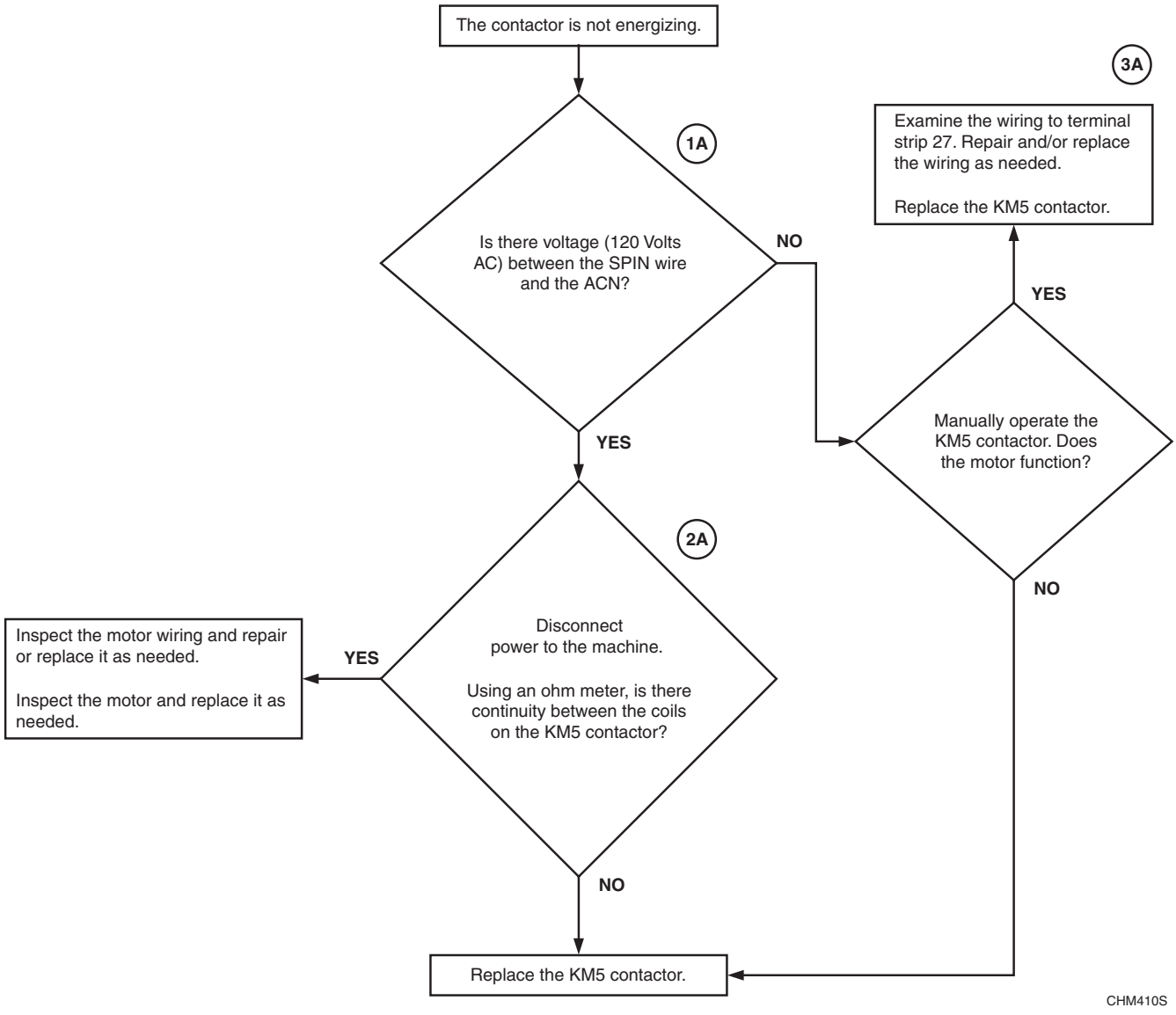
12. Contactor Analysis (SP)


The contactor is not energizing.
1A
Is there voltage (120 Volts AC) between the SPIN wire and the ACN?
NO
YES
3A
Examine the wiring to terminal strip 27. Repair and/or replace the wiring as needed.
Replace the KM5 contactor.
YES
Manually operate the KM5 contactor. Does the motor function?
NO
2A
Disconnect power to the machine.
Using an ohm meter, is there continuity between the coils on the KM5 contactor?
YES
Inspect the motor wiring and repair or replace it as needed.
Inspect the motor and replace it as needed.
NO
Replace the KM5 contactor.
CHM410S

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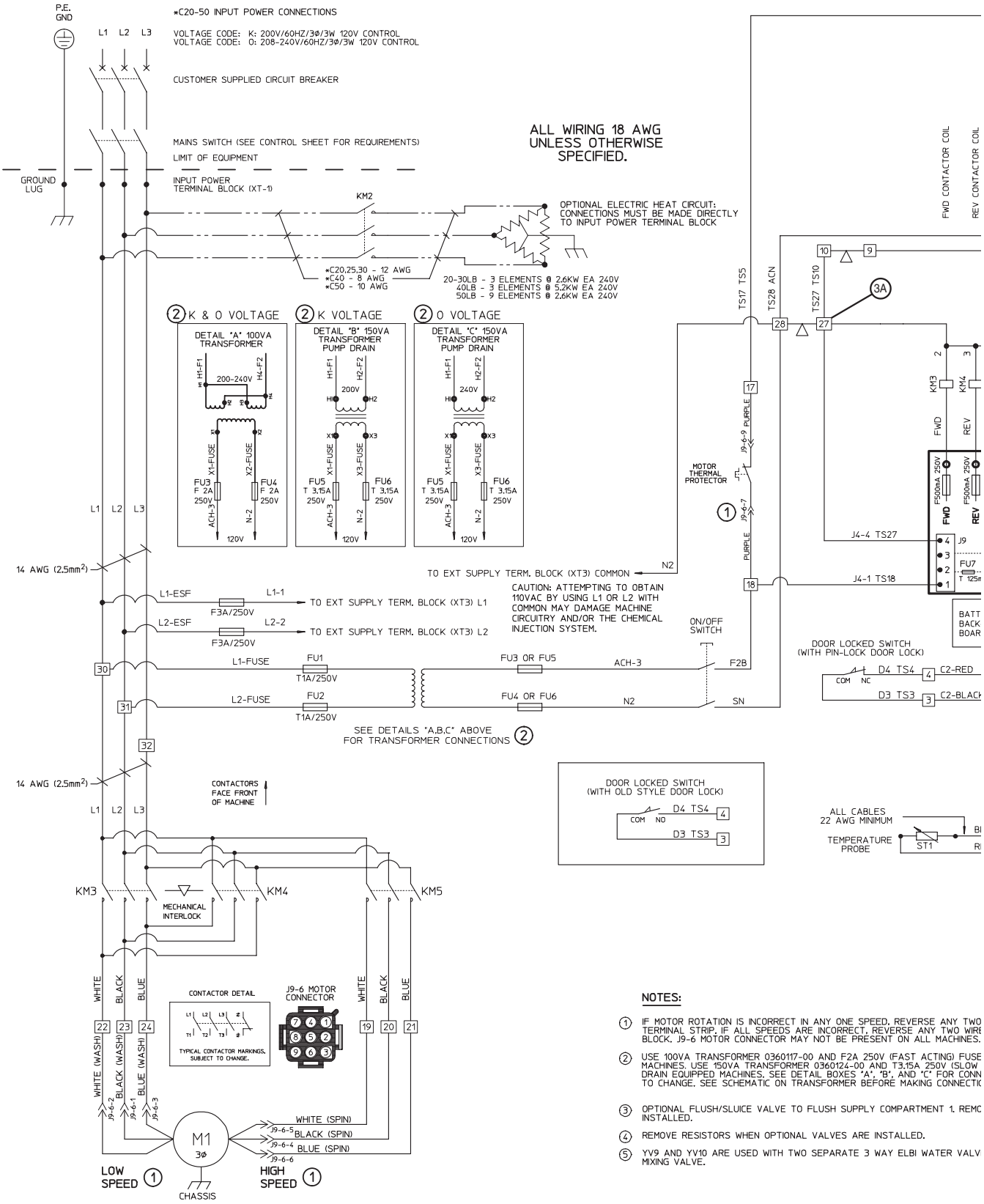
Contactor Analysis (SP) (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
MOTOR THERMAL PROTECTOR
ON/OFF SWITCH
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
LOW SPEED 1
HIGH SPEED 1
CHASSIS
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTI
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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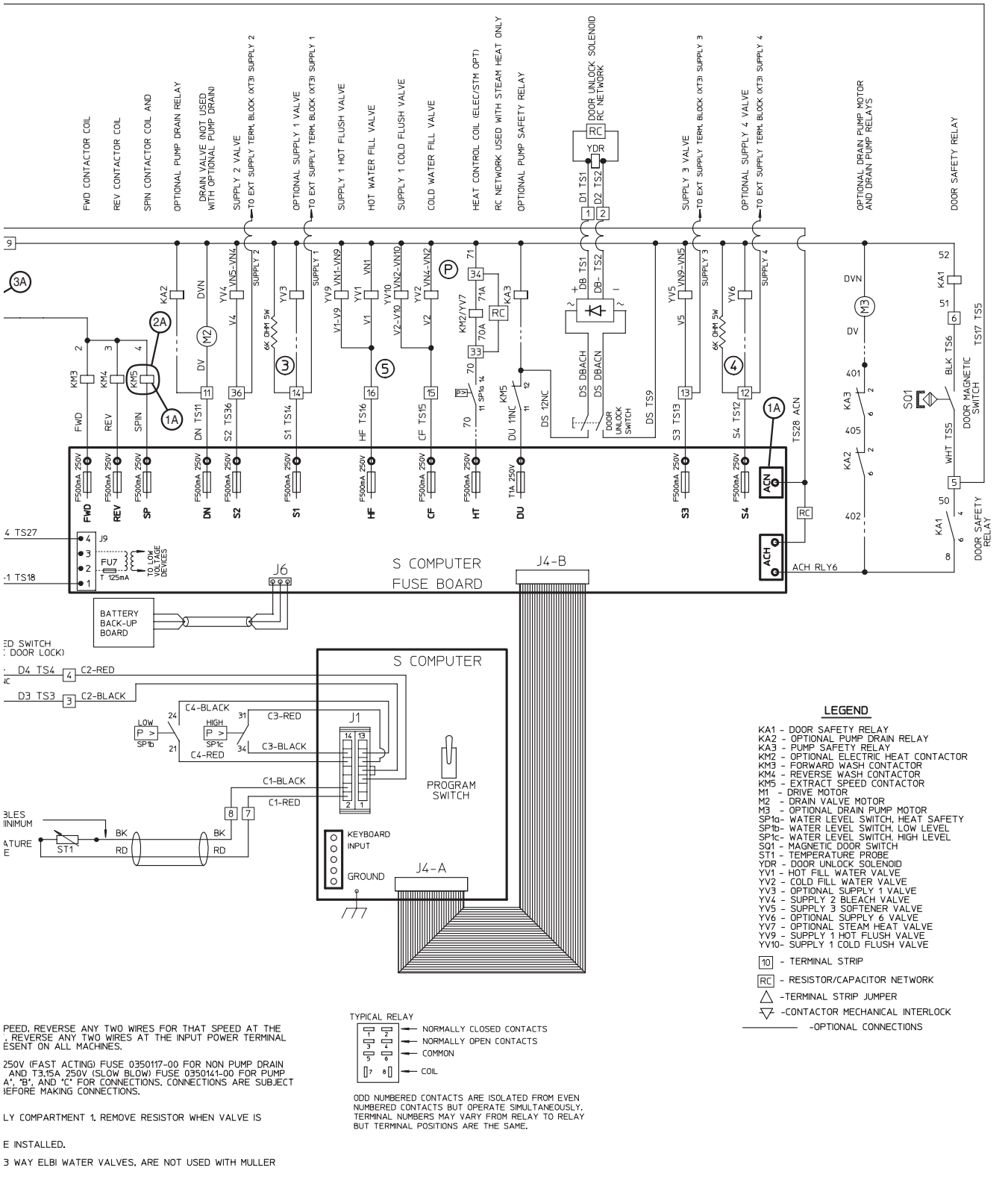
Contactor Analysis (SP) (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
ACH RLY6
DOOR MAGNETIC SWITCH
DOOR SAFETY RELAY
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
PEED. REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
. REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
ESENT ON ALL MACHINES.
250V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
EFORE MAKING CONNECTIONS.
LY COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
E INSTALLED.
3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

CHM411S
607072(P)

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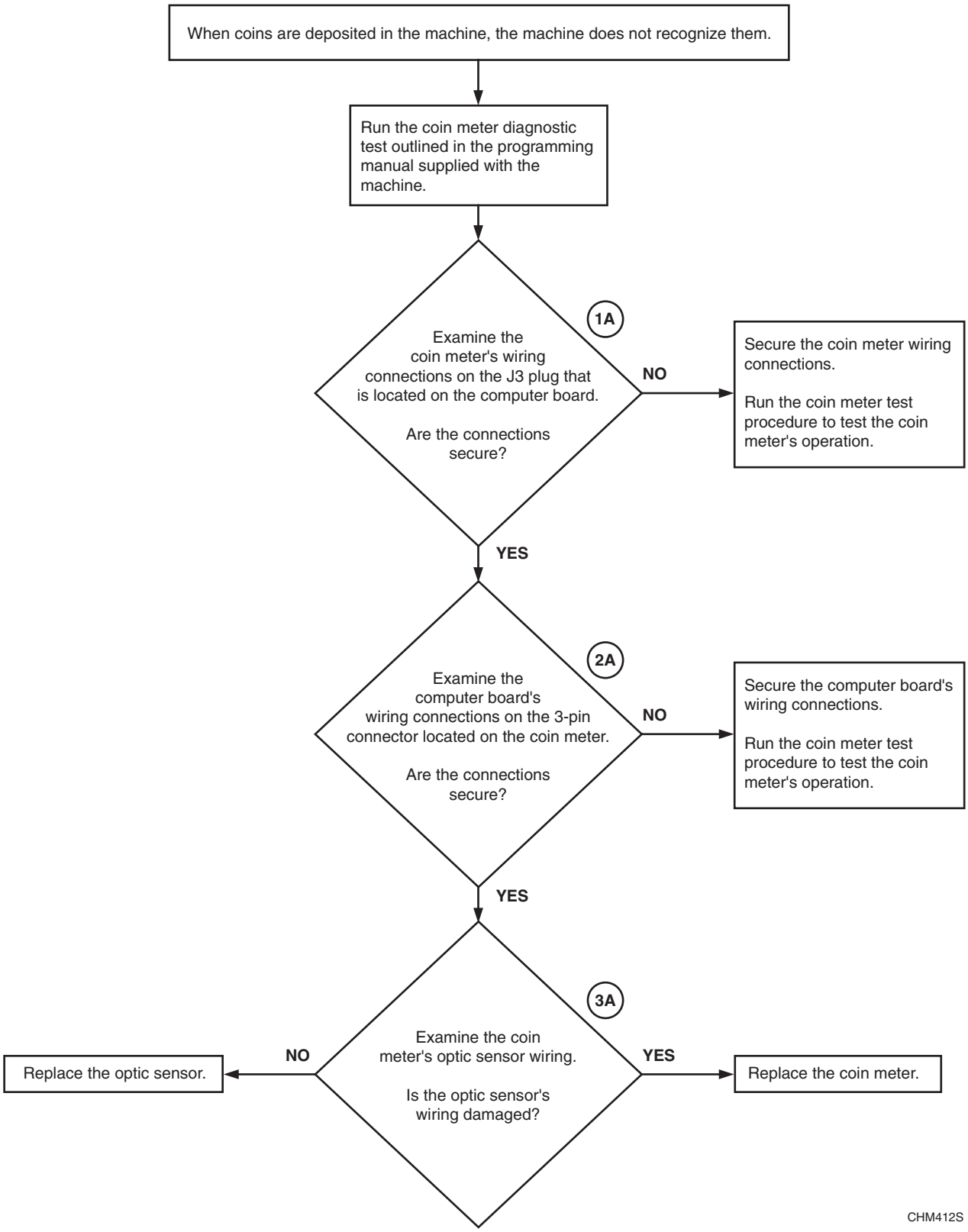
13. Coins Ignored When Entered


When coins are deposited in the machine, the machine does not recognize them.
Run the coin meter diagnostic test outlined in the programming manual supplied with the machine.
1A
Examine the coin meter's wiring connections on the J3 plug that is located on the computer board.
Are the connections secure?
NO
Secure the coin meter wiring connections.
Run the coin meter test procedure to test the coin meter's operation.
YES
2A
Examine the computer board's wiring connections on the 3-pin connector located on the coin meter.
Are the connections secure?
NO
Secure the computer board's wiring connections.
Run the coin meter test procedure to test the coin meter's operation.
YES
3A
Examine the coin meter's optic sensor wiring.
Is the optic sensor's wiring damaged?
NO
Replace the optic sensor.
YES
Replace the coin meter.
CHM412S

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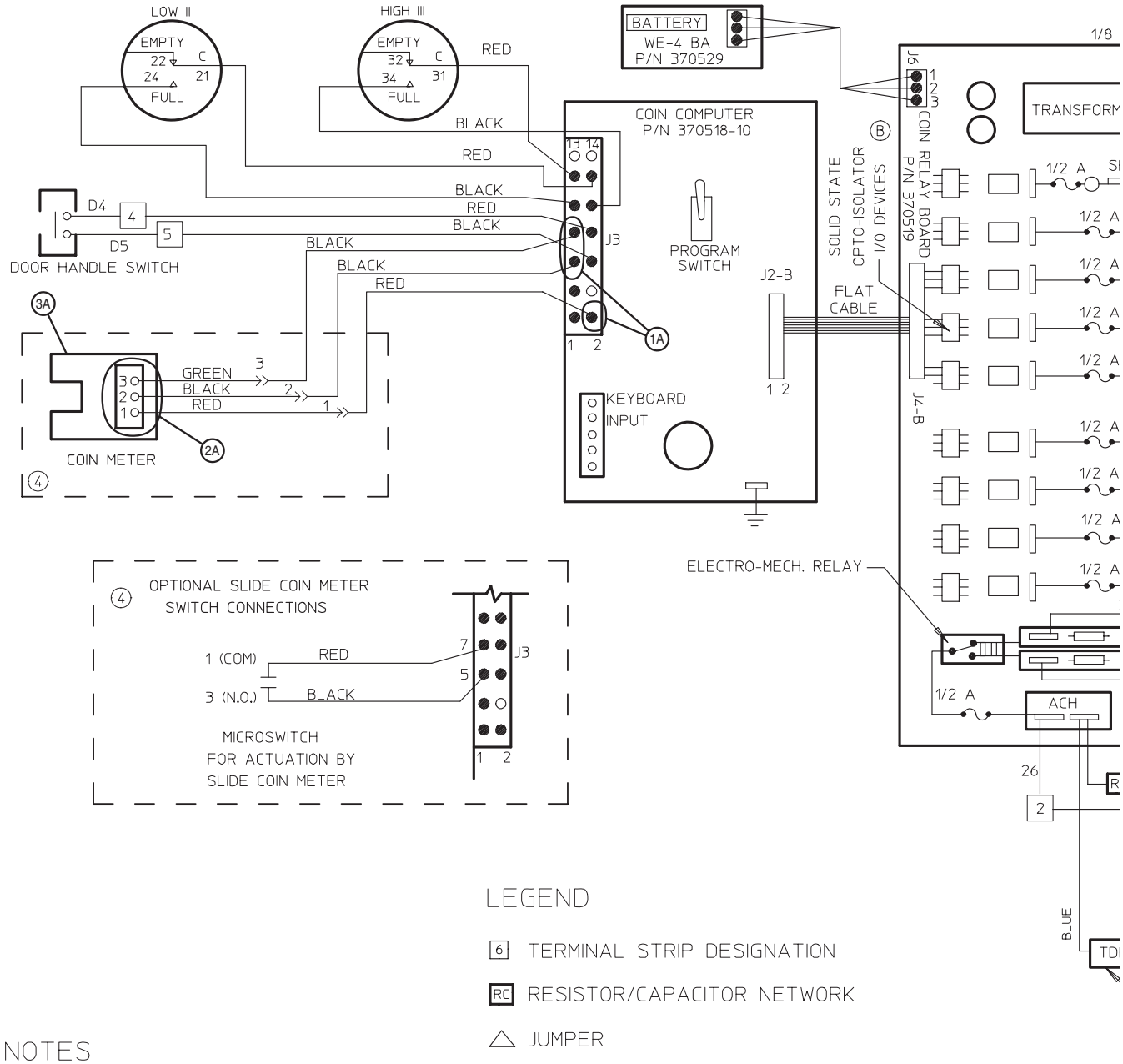
Coins Ignored When Entered (Sheet 1 of 2)



LEGEND

6 TERMINAL STRIP DESIGNATION

RC RESISTOR/CAPACITOR NETWORK

△ JUMPER

NOTES

1. CAN BE USED AS SUPPLY 3 OR COIN BLOCKING COIL.
2. SUPPLIES WILL COME ON WITH FILL.
3. CAPACITOR RATED 240uF, 450VDC.
4. OPTIONAL SLIDE COIN METER SWITCH CONNECTION

NOTE: Refer to the wiring diagram supplied with your machine.

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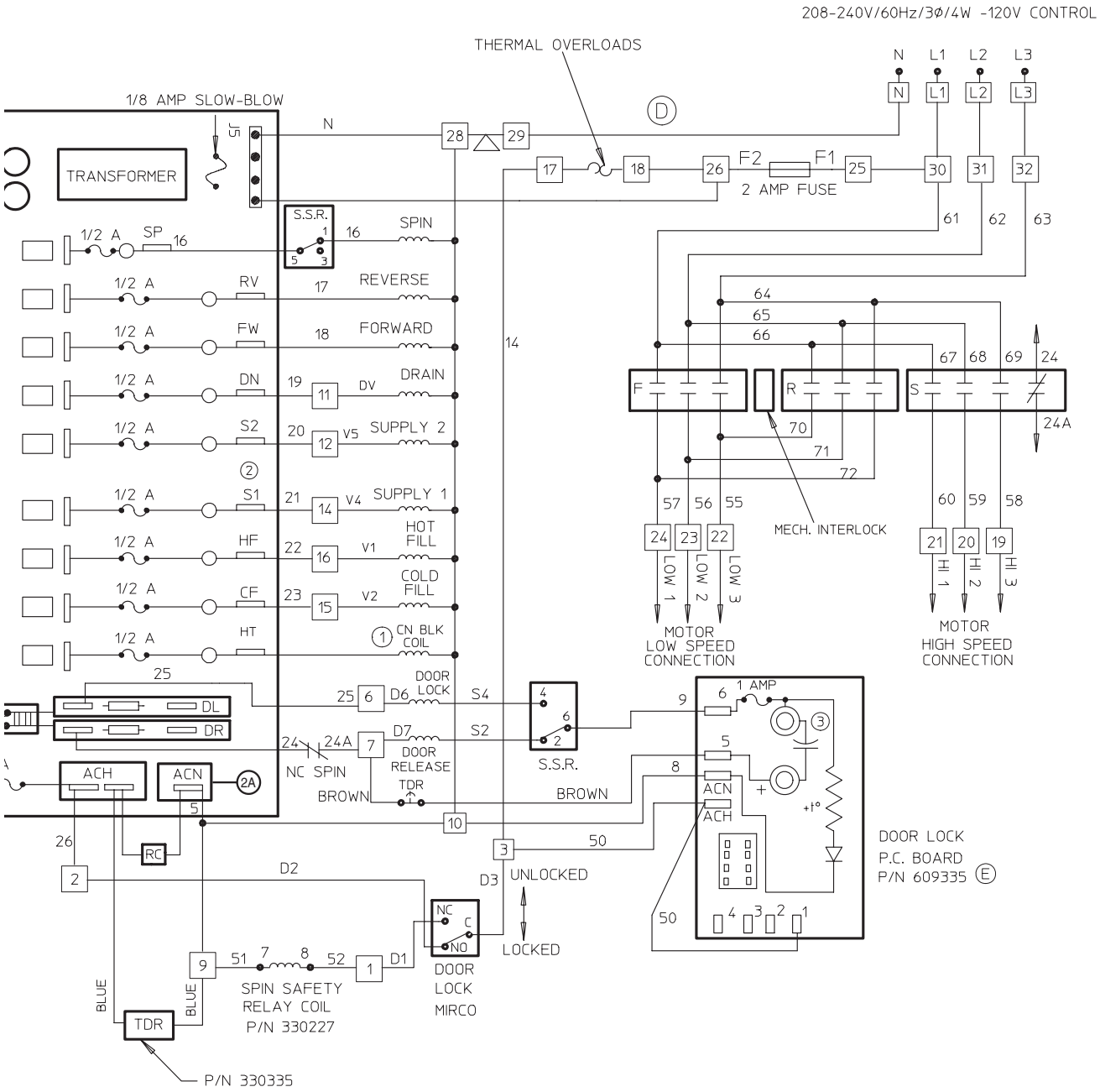
Coins Ignored When Entered (Sheet 2 of 2)



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606909(F)

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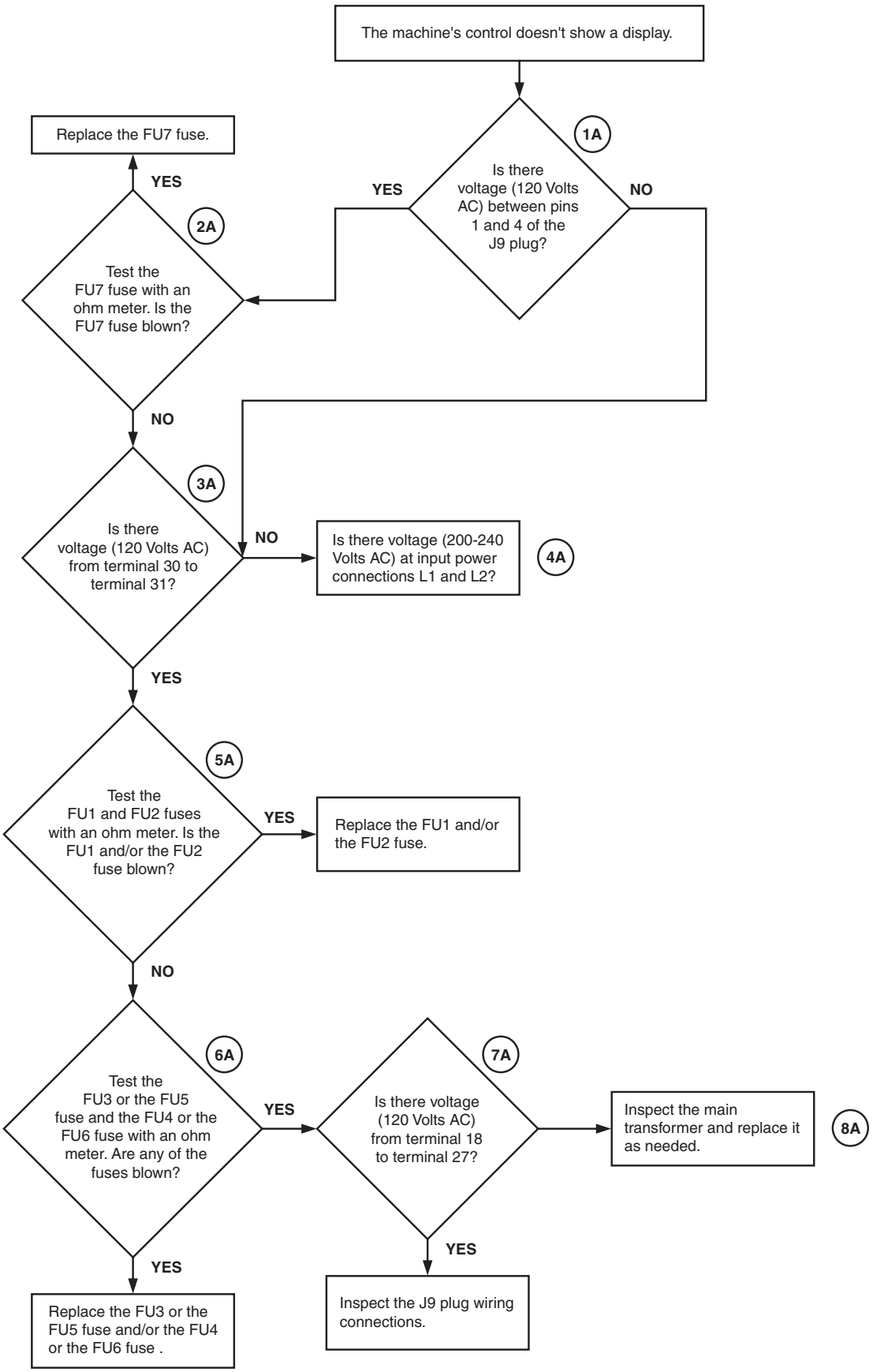
14. Control Has No Display (OPL)


The machine's control doesn't show a display.
1A
Is there voltage (120 Volts AC) between pins 1 and 4 of the J9 plug?
YES
NO
Replace the FU7 fuse.
YES
2A
Test the FU7 fuse with an ohm meter. Is the FU7 fuse blown?
NO
3A
Is there voltage (120 Volts AC) from terminal 30 to terminal 31?
NO
Is there voltage (200-240 Volts AC) at input power connections L1 and L2?
4A
YES
5A
Test the FU1 and FU2 fuses with an ohm meter. Is the FU1 and/or the FU2 fuse blown?
YES
Replace the FU1 and/or the FU2 fuse.
NO
6A
Test the FU3 or the FU5 fuse and the FU4 or the FU6 fuse with an ohm meter. Are any of the fuses blown?
YES
7A
Is there voltage (120 Volts AC) from terminal 18 to terminal 27?
Inspect the main transformer and replace it as needed.
8A
YES
Inspect the J9 plug wiring connections.
YES
Replace the FU3 or the FU5 fuse and/or the FU4 or the FU6 fuse .
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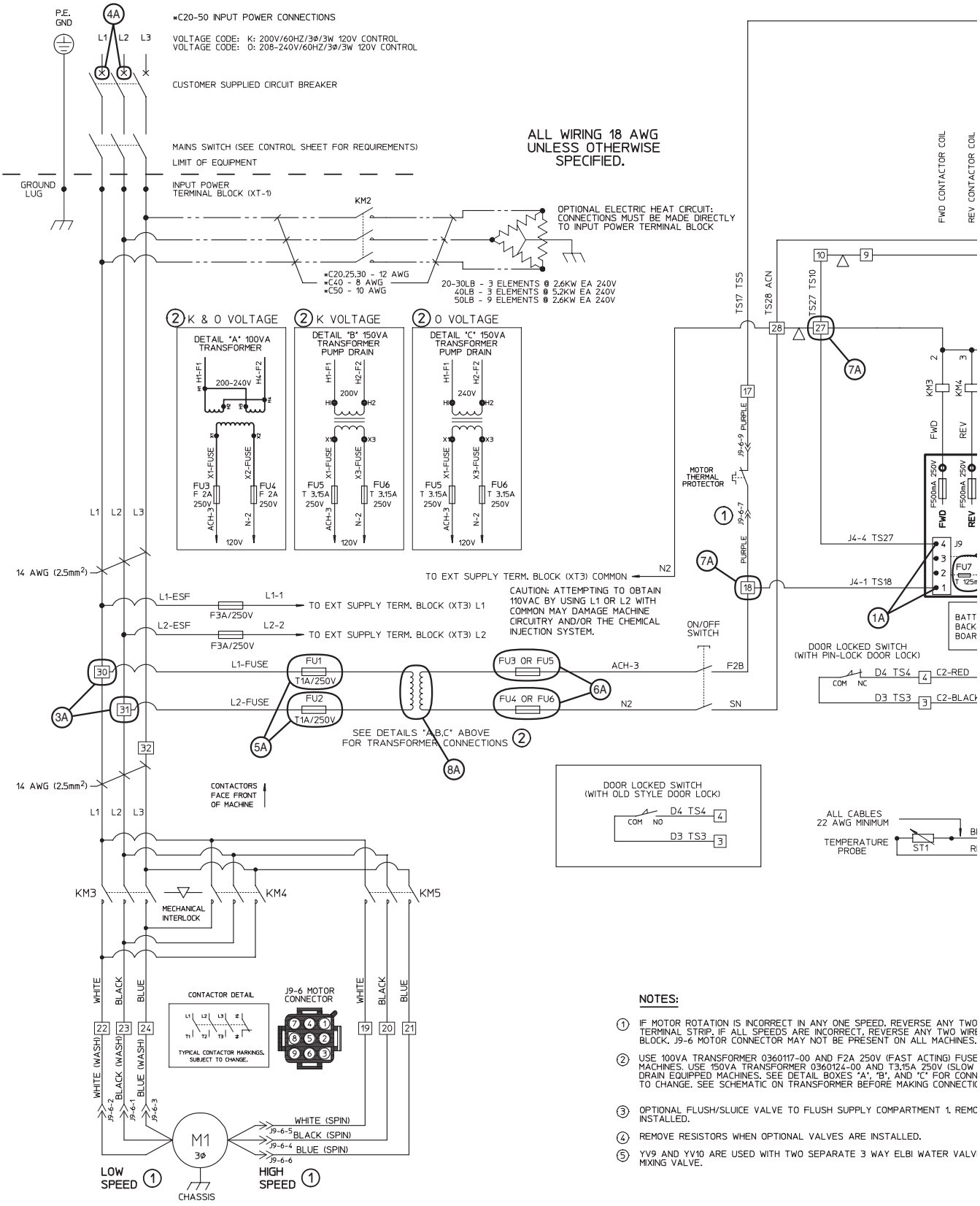
Control Has No Display (OPL) (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
14 AWG (2.5mm²)
L1-ESF
L1-1
F3A/250V
TO EXT SUPPLY TERM. BLOCK (XT3) L1
L2-ESF
L2-2
TO EXT SUPPLY TERM. BLOCK (XT3) L2
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
L1-FUSE
L2-FUSE
FU1 T1A/250V
FU2 T1A/250V
FU3 OR FU5
FU4 OR FU6
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
KM3
KM4
KM5
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
WHITE
BLACK
BLUE
WHITE (WASH)
BLACK (WASH)
BLUE (WASH)
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
M1
3Ø
CHASSIS
LOW SPEED 1
HIGH SPEED 1
MOTOR THERMAL PROTECTOR
ON/OFF SWITCH
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
D4 TS4
D3 TS3
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
ST1
FWD CONTACTOR COIL
REV CONTACTOR COIL
J4-4 TS27
J4-1 TS18
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTIO
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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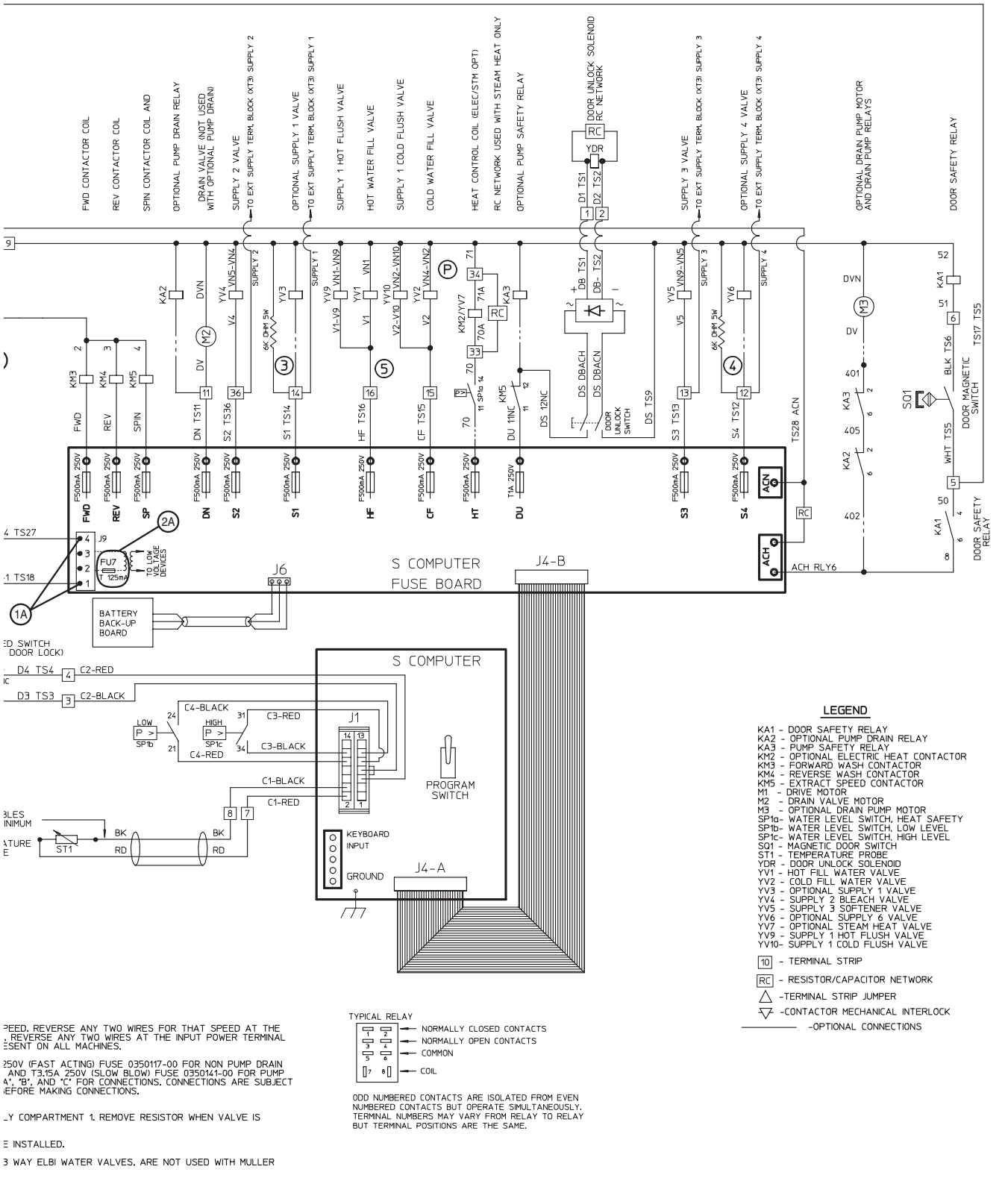
Control Has No Display (OPL) (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
DOOR SAFETY RELAY
DOOR MAGNETIC SWITCH
ACH RLY6
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SO1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS

PEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
. REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
ESENT ON ALL MACHINES.

250V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
EFORE MAKING CONNECTIONS.

Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS

E INSTALLED.

3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

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607072(P)

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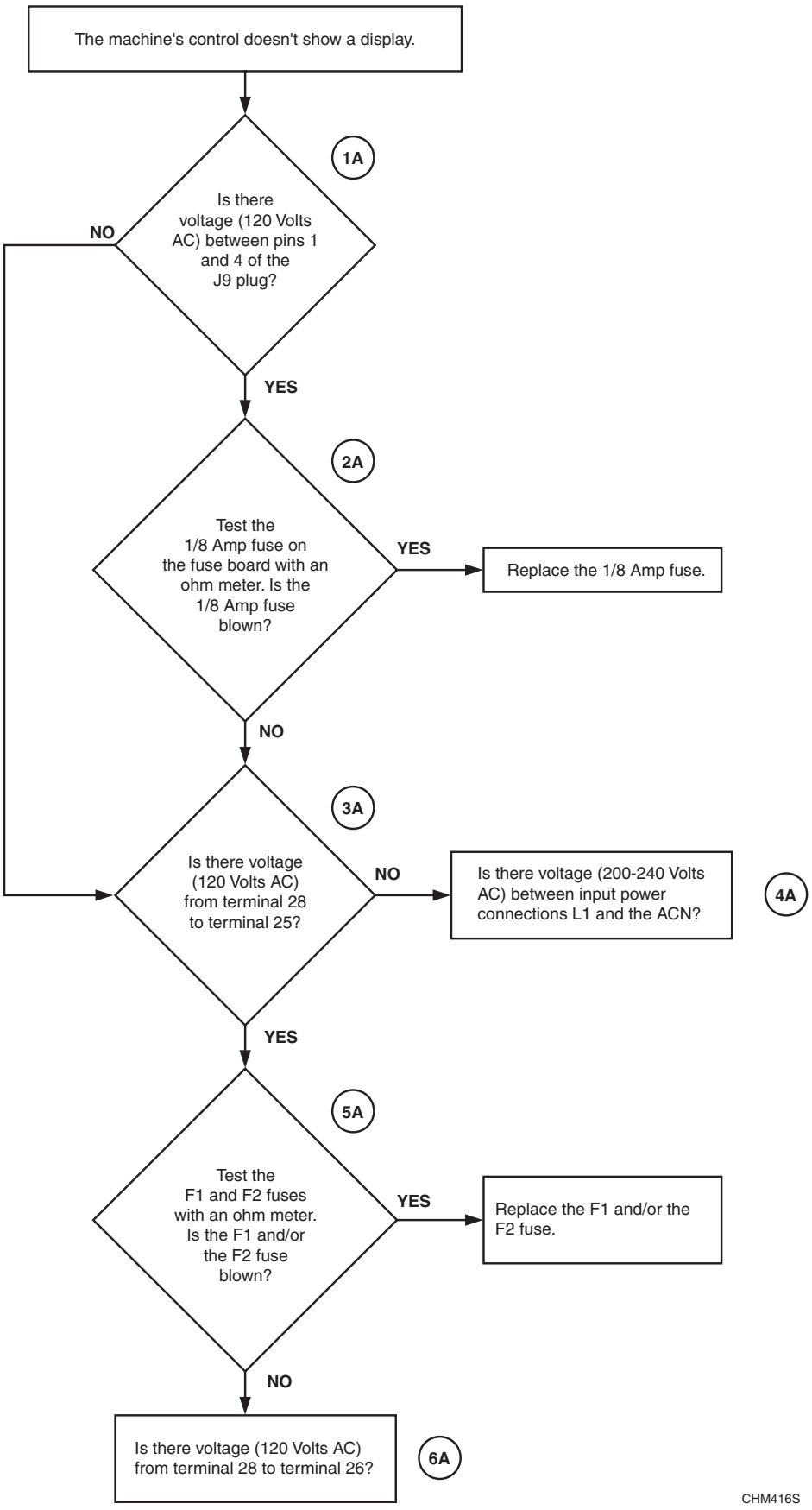
15. Control Has No Display (Coin)


The machine's control doesn't show a display.
1A
Is there voltage (120 Volts AC) between pins 1 and 4 of the J9 plug?
NO
YES
2A
Test the 1/8 Amp fuse on the fuse board with an ohm meter. Is the 1/8 Amp fuse blown?
YES
Replace the 1/8 Amp fuse.
NO
3A
Is there voltage (120 Volts AC) from terminal 28 to terminal 25?
NO
Is there voltage (200-240 Volts AC) between input power connections L1 and the ACN?
4A
YES
5A
Test the F1 and F2 fuses with an ohm meter. Is the F1 and/or the F2 fuse blown?
YES
Replace the F1 and/or the F2 fuse.
NO
Is there voltage (120 Volts AC) from terminal 28 to terminal 26?
6A
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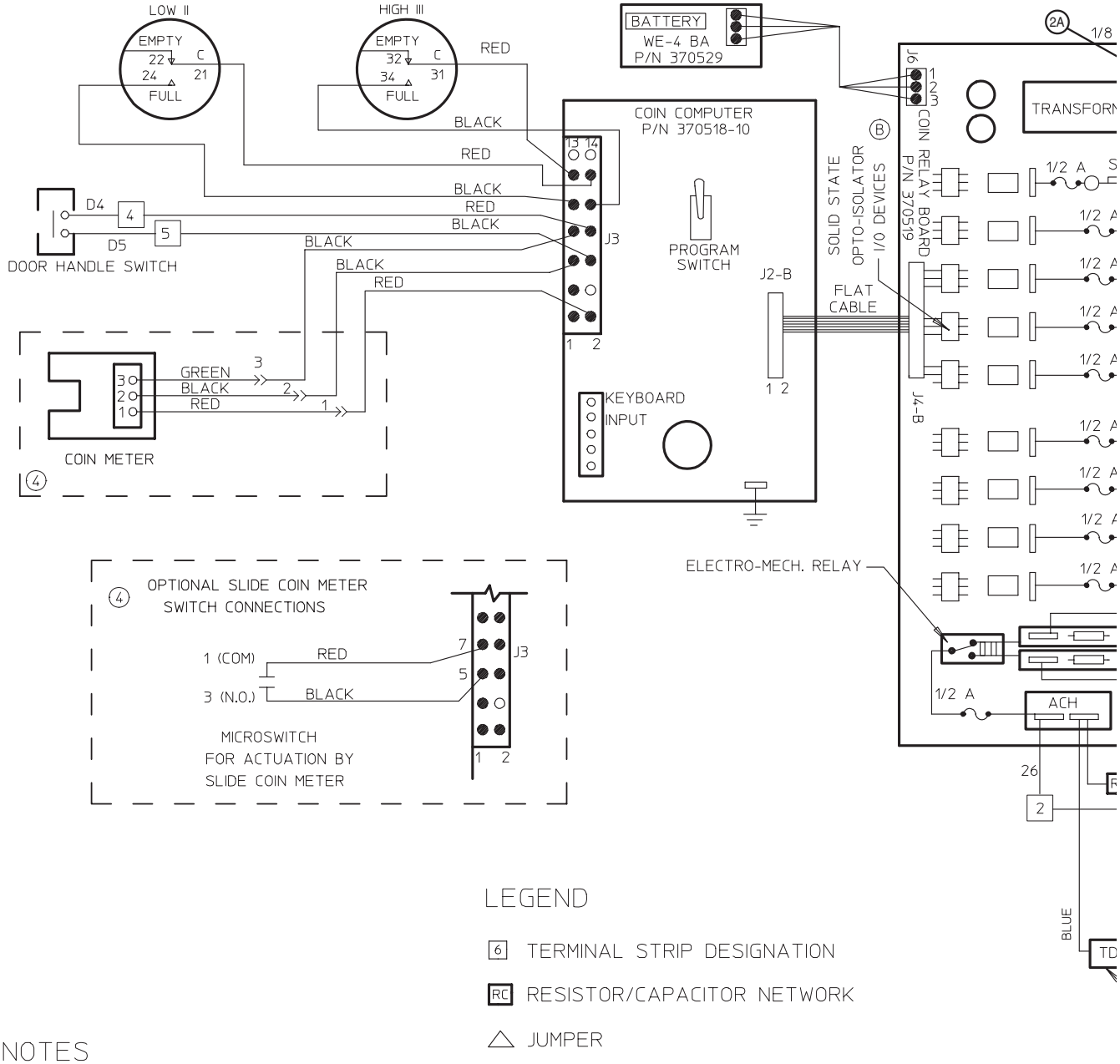
Control Has No Display (Coin) (Sheet 1 of 2)



LEGEND

- 6 TERMINAL STRIP DESIGNATION
- RC RESISTOR/CAPACITOR NETWORK
- △ JUMPER

NOTES

1. CAN BE USED AS SUPPLY 3 OR COIN BLOCKING COIL.
2. SUPPLIES WILL COME ON WITH FILL.
3. CAPACITOR RATED 240uF, 450VDC.
4. OPTIONAL SLIDE COIN METER SWITCH CONNECTION

NOTE: Refer to the wiring diagram supplied with your machine.

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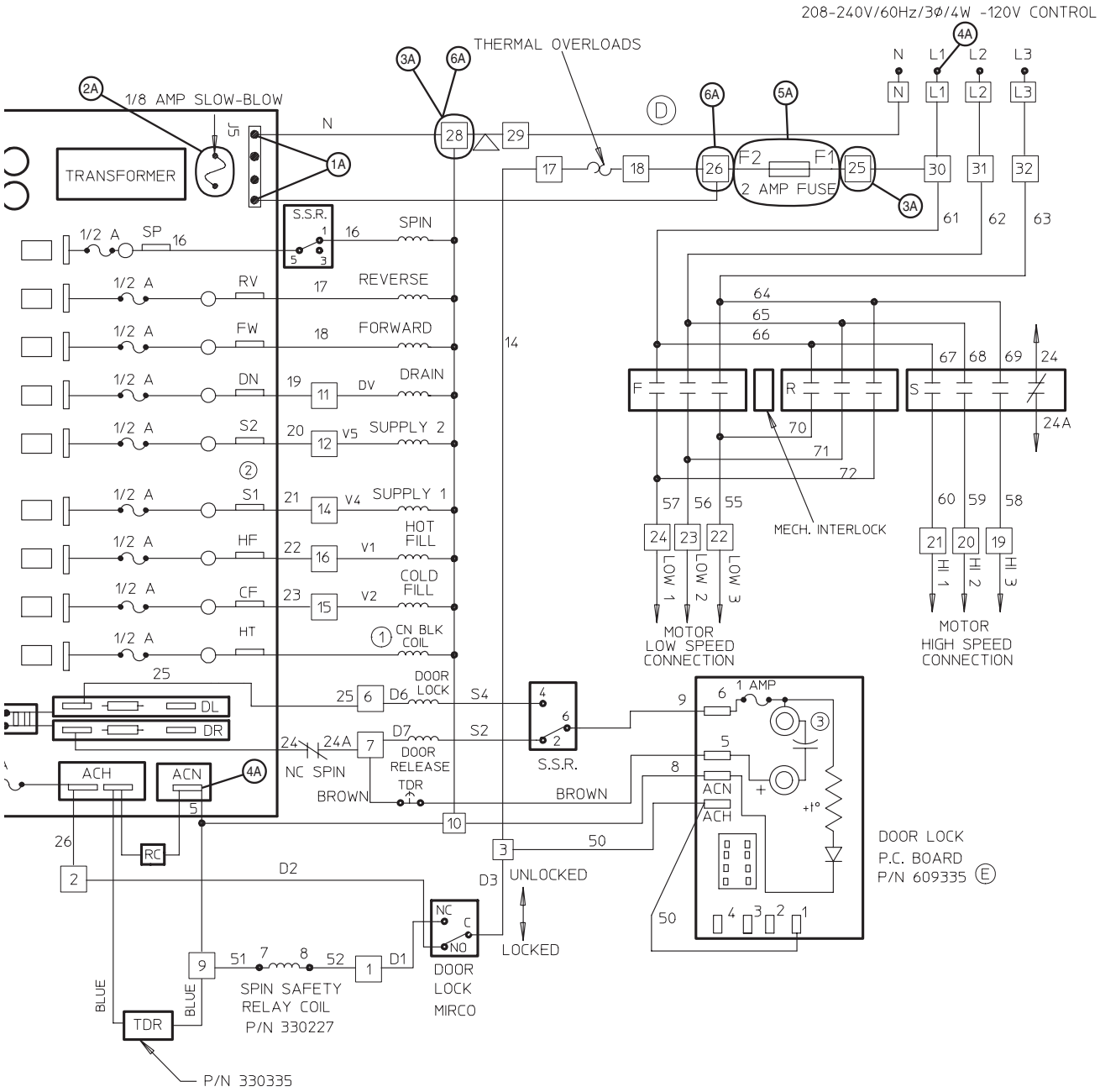
Control Has No Display (Coin) (Sheet 2 of 2)



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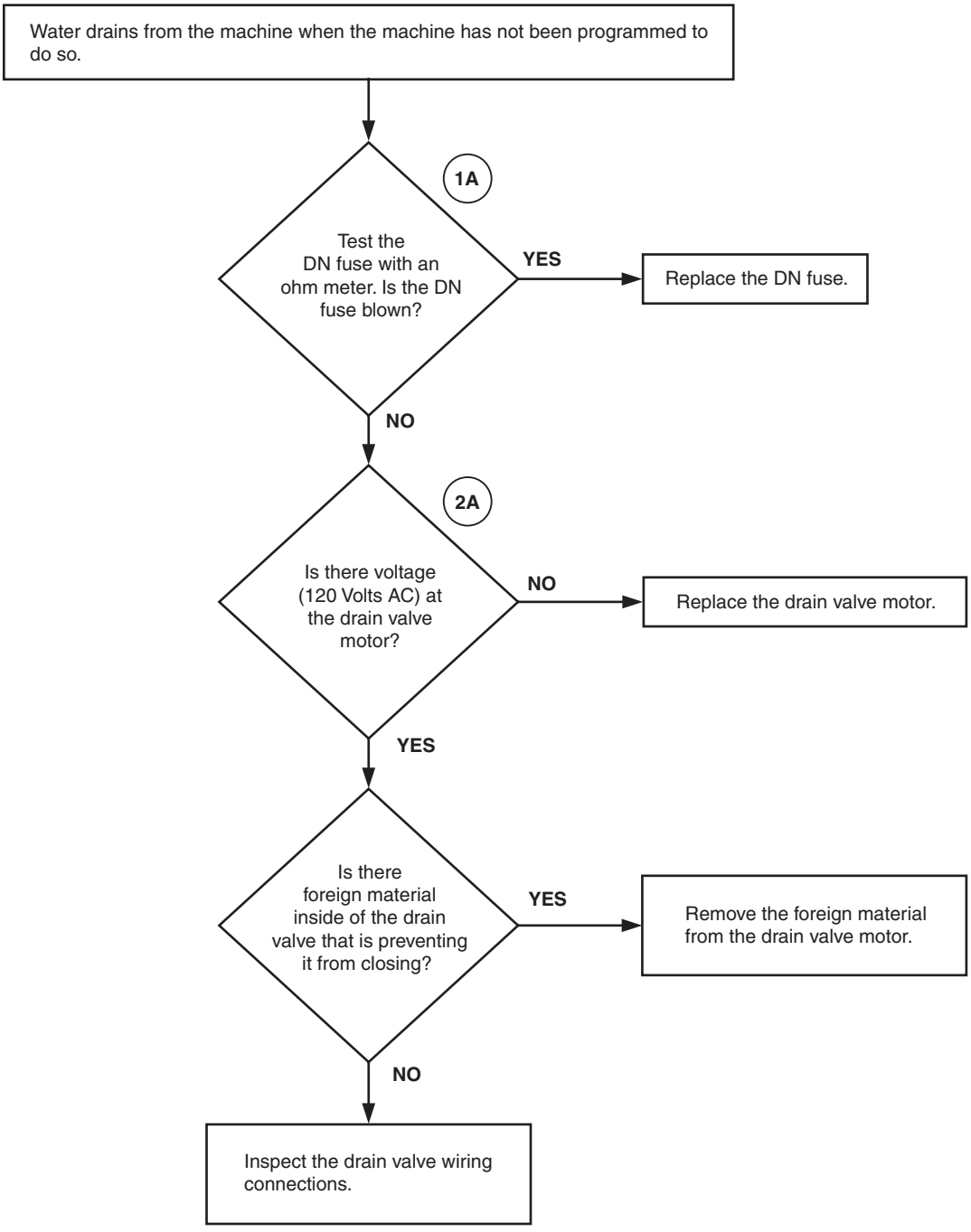
16. The Machine Does Not Hold Water


Water drains from the machine when the machine has not been programmed to do so.
1A
Test the DN fuse with an ohm meter. Is the DN fuse blown?
YES
Replace the DN fuse.
NO
2A
Is there voltage (120 Volts AC) at the drain valve motor?
NO
Replace the drain valve motor.
YES
Is there foreign material inside of the drain valve that is preventing it from closing?
YES
Remove the foreign material from the drain valve motor.
NO
Inspect the drain valve wiring connections.

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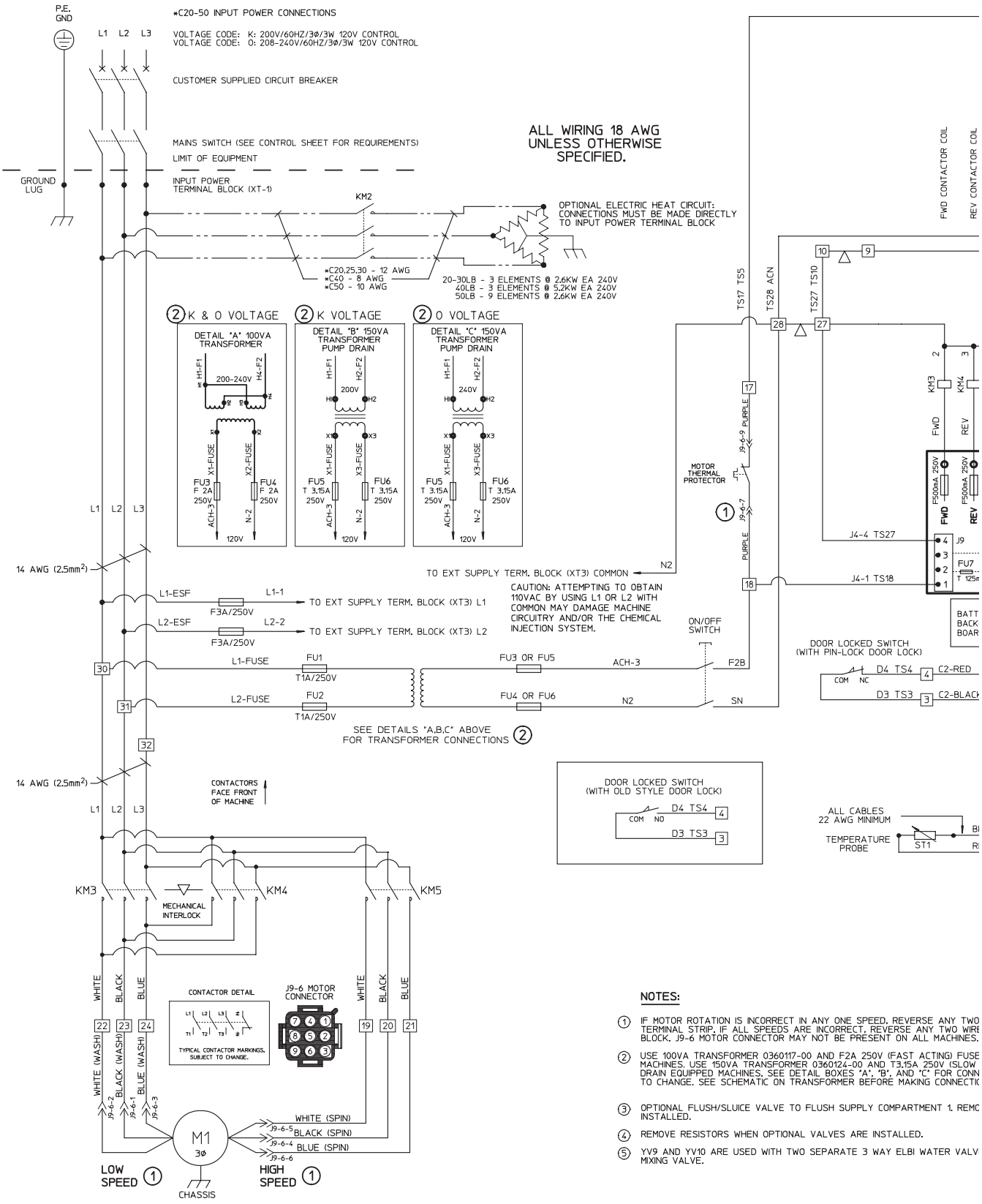
The Machine Does Not Hold Water (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
MOTOR THERMAL PROTECTOR
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
ON/OFF SWITCH
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
LOW SPEED 1
HIGH SPEED 1
CHASSIS
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTI
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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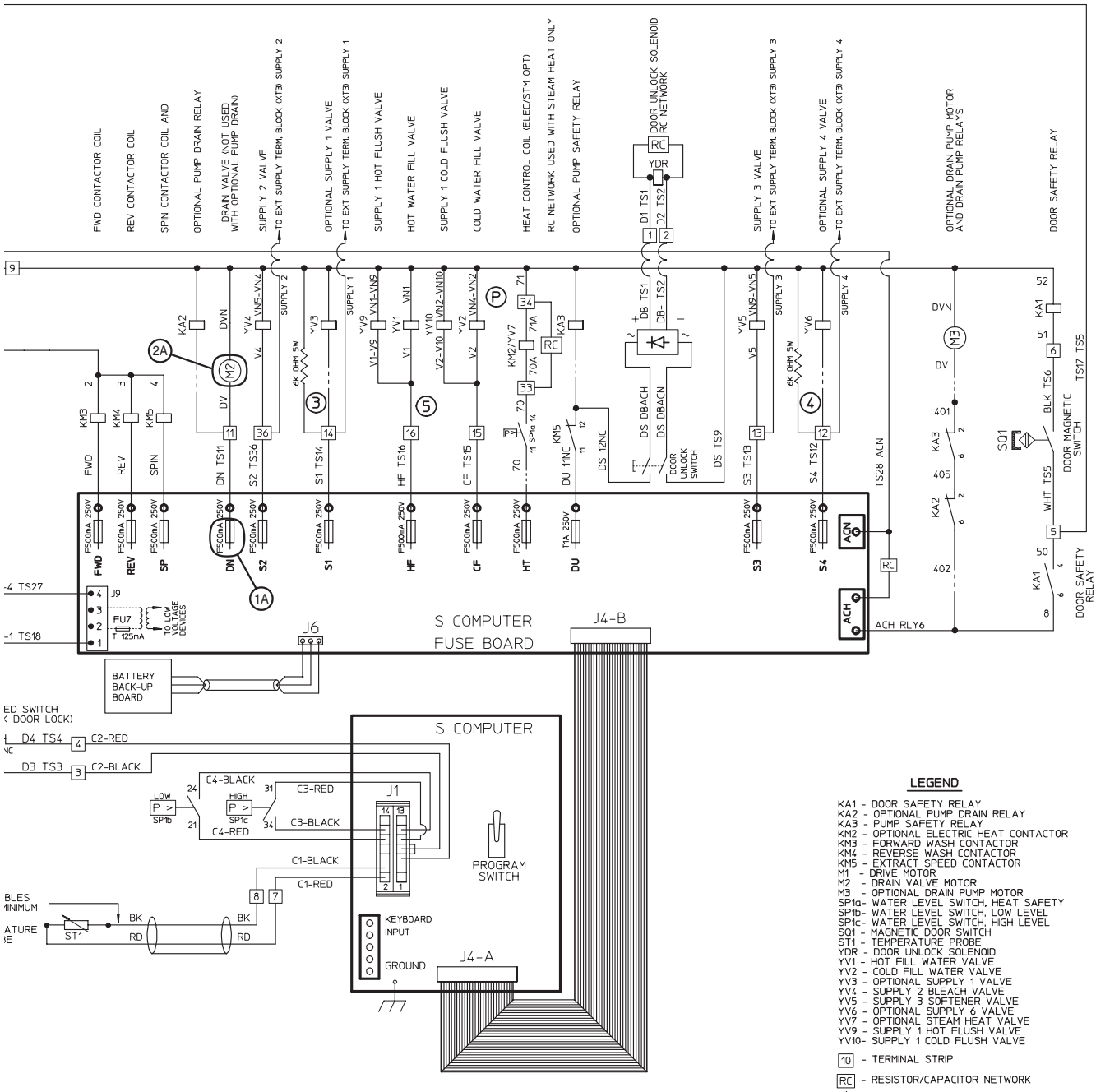
The Machine Does Not Hold Water (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J6
J4-B
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
DOOR UNLOCK SWITCH
DOOR MAGNETIC SWITCH
ACH RLY6
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
PEED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
, REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
ESENT ON ALL MACHINES.
250V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
) AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
'A', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
BEFORE MAKING CONNECTIONS.
'LY COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
E INSTALLED.
3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

CHM419S
607072(P)

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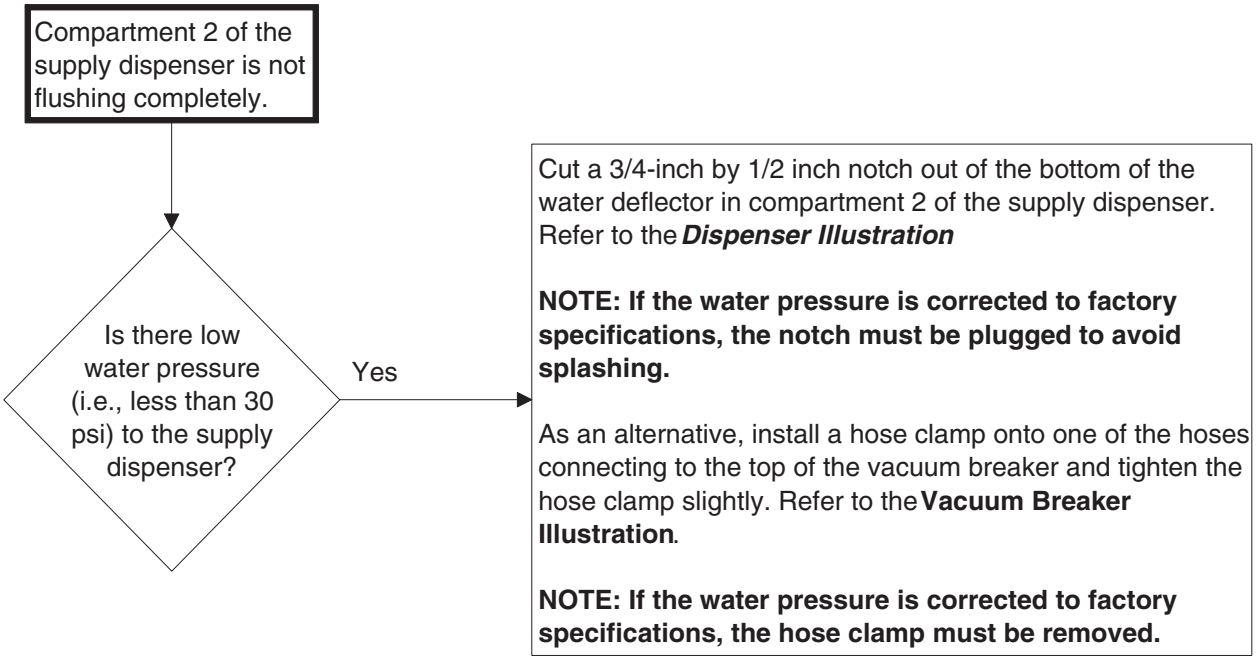
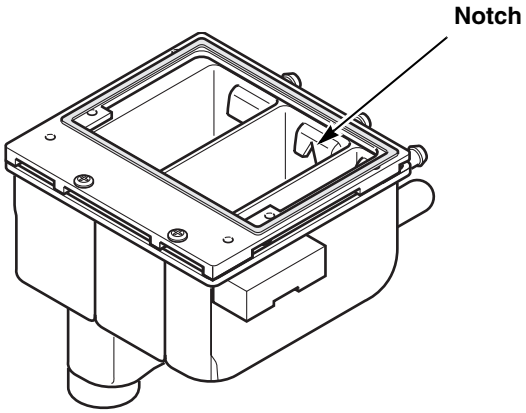
17. Compartment 2 of Supply Dispenser Not Flushing Completely


Compartment 2 of the supply dispenser is not flushing completely.
Is there low water pressure (i.e., less than 30 psi) to the supply dispenser?
Yes
Cut a 3/4-inch by 1/2 inch notch out of the bottom of the water deflector in compartment 2 of the supply dispenser. Refer to the Dispenser Illustration
NOTE: If the water pressure is corrected to factory specifications, the notch must be plugged to avoid splashing.
As an alternative, install a hose clamp onto one of the hoses connecting to the top of the vacuum breaker and tighten the hose clamp slightly. Refer to the Vacuum Breaker Illustration.
NOTE: If the water pressure is corrected to factory specifications, the hose clamp must be removed.

CHM433S

Dispenser Illustration



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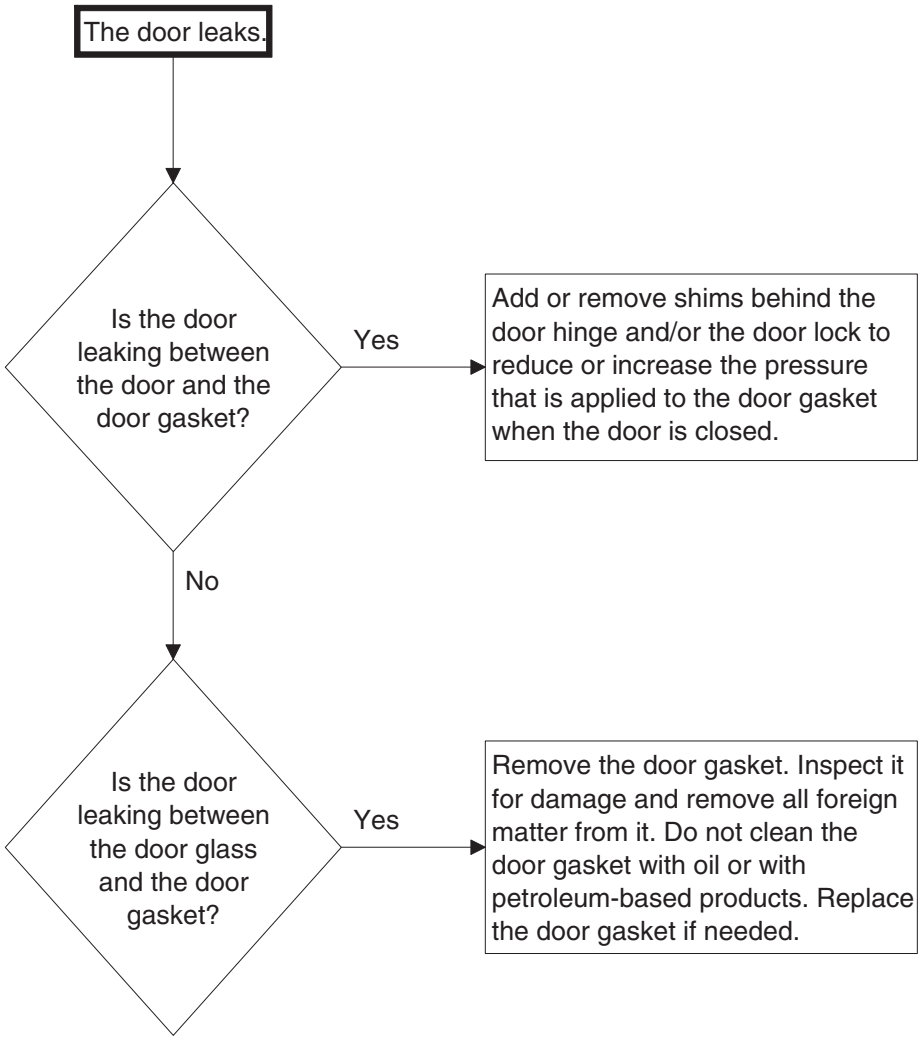
18. The Door Leaks


The door leaks.
Is the door leaking between the door and the door gasket?
Yes
Add or remove shims behind the door hinge and/or the door lock to reduce or increase the pressure that is applied to the door gasket when the door is closed.
No
Is the door leaking between the door glass and the door gasket?
Yes
Remove the door gasket. Inspect it for damage and remove all foreign matter from it. Do not clean the door gasket with oil or with petroleum-based products. Replace the door gasket if needed.

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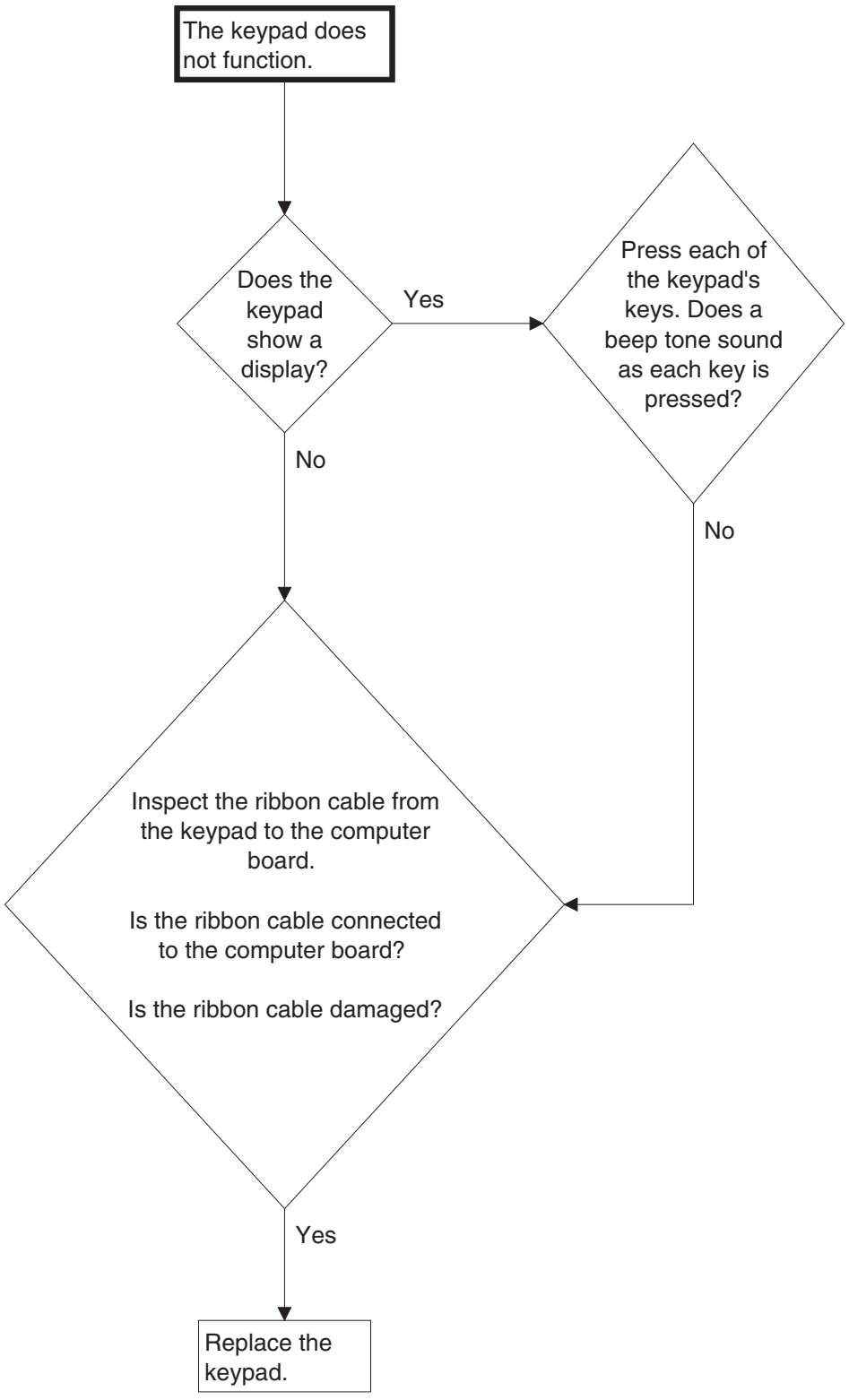
19. No Keypad Function


The keypad does not function.
Does the keypad show a display?
Yes
Press each of the keypad's keys. Does a beep tone sound as each key is pressed?
No
No
Inspect the ribbon cable from the keypad to the computer board.
Is the ribbon cable connected to the computer board?
Is the ribbon cable damaged?
Yes
Replace the keypad.

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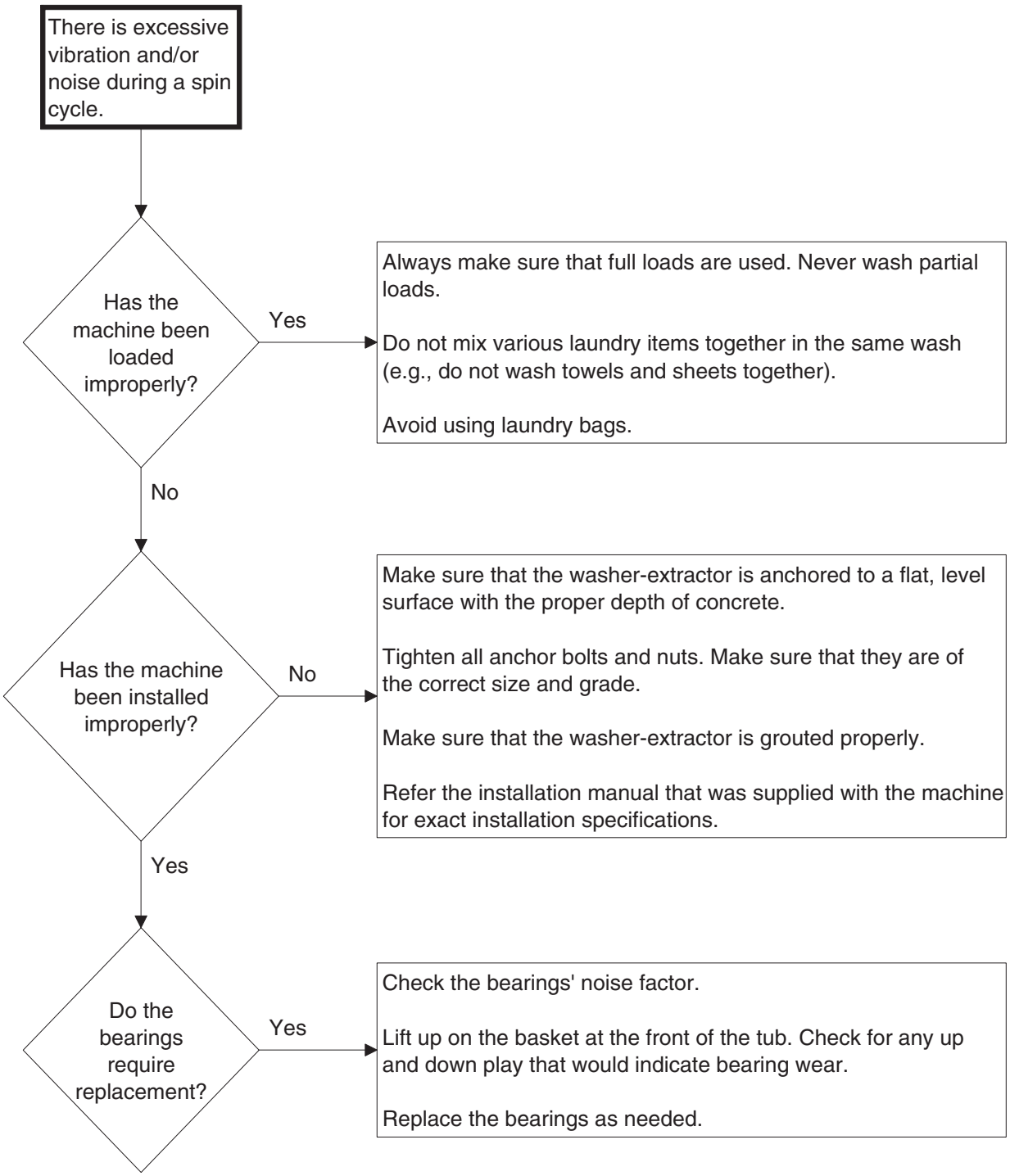
20. Excessive Vibration and/or Noise During Spin


There is excessive vibration and/or noise during a spin cycle.
Has the machine been loaded improperly?
Yes
Always make sure that full loads are used. Never wash partial loads.
Do not mix various laundry items together in the same wash (e.g., do not wash towels and sheets together).
Avoid using laundry bags.
No
Has the machine been installed improperly?
No
Make sure that the washer-extractor is anchored to a flat, level surface with the proper depth of concrete.
Tighten all anchor bolts and nuts. Make sure that they are of the correct size and grade.
Make sure that the washer-extractor is grouted properly.
Refer the installation manual that was supplied with the machine for exact installation specifications.
Yes
Do the bearings require replacement?
Yes
Check the bearings' noise factor.
Lift up on the basket at the front of the tub. Check for any up and down play that would indicate bearing wear.
Replace the bearings as needed.

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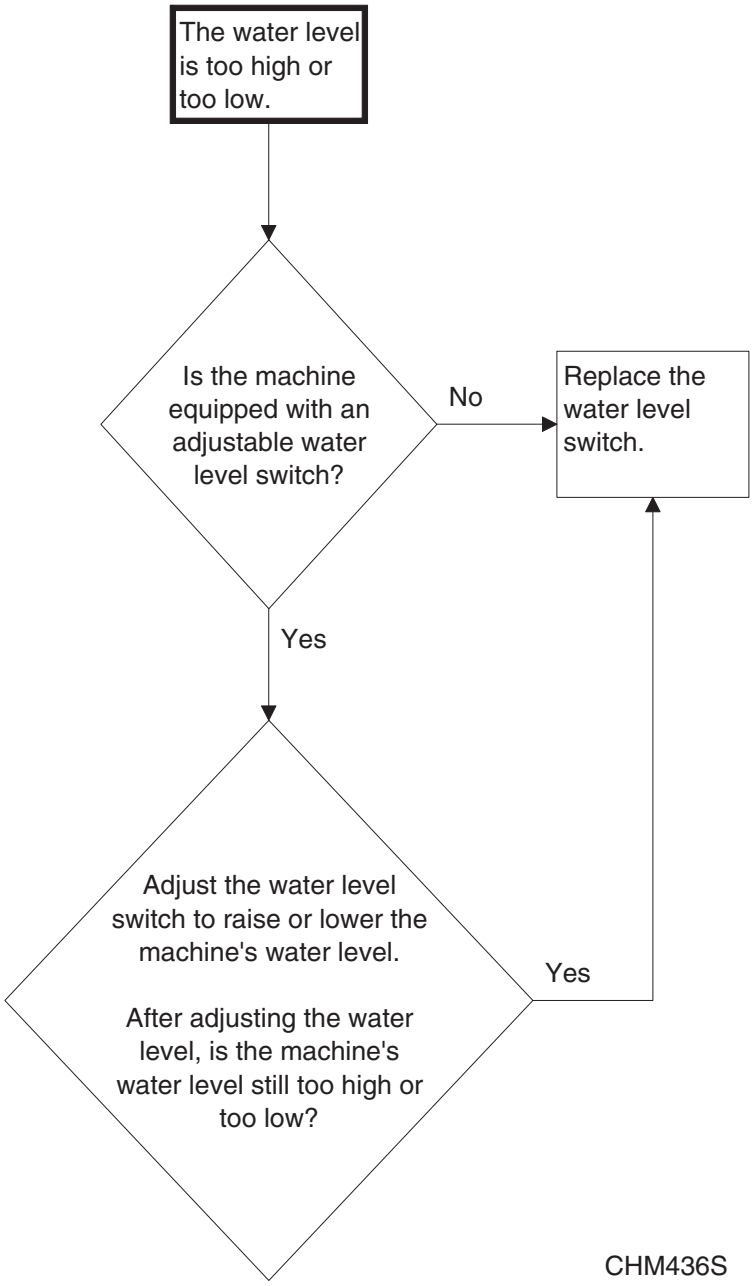
21. The Water Level is Too High or Too Low


The water level is too high or too low.
Is the machine equipped with an adjustable water level switch?
No
Replace the water level switch.
Yes
Adjust the water level switch to raise or lower the machine's water level.
After adjusting the water level, is the machine's water level still too high or too low?
Yes
CHM436S

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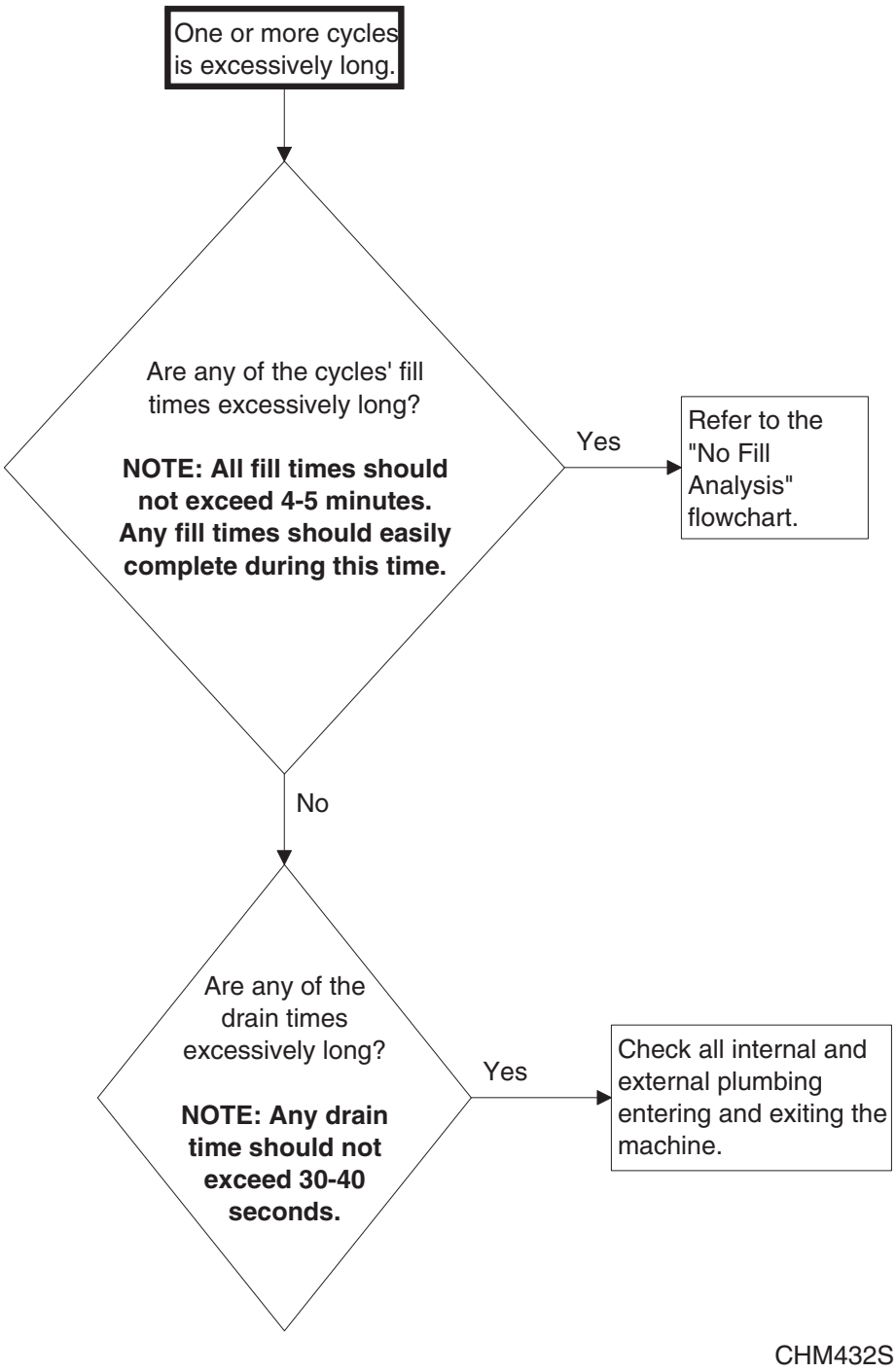
22. Excessive Cycle Time


One or more cycles is excessively long.
Are any of the cycles' fill times excessively long?
NOTE: All fill times should not exceed 4-5 minutes. Any fill times should easily complete during this time.
Yes
Refer to the "No Fill Analysis" flowchart.
No
Are any of the drain times excessively long?
NOTE: Any drain time should not exceed 30-40 seconds.
Yes
Check all internal and external plumbing entering and exiting the machine.

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23. Water Running Continuously with Machine Power Off

With electrical power removed from the machine, water is running continuously into compartment 1 of the supply dispenser.

Using the "Water Running Continuously" schematic, follow the hose from compartment 1 of the supply dispenser back through the vacuum breaker and the Y-connector to the hot water valve at V9 and the cold water valve at V10.

To determine which of the valves is leaking, turn off the water supply to each of the valves, one valve at a time. When the water supply is removed from the leaking valve, the water running into compartment 1 of the supply dispenser will stop.

For example, if water is running into compartment 1 of the supply dispenser continuously, when the water supply is removed from the hot water valve, the water continues to run into compartment 1. However, when the water supply is removed from the cold water valve, the water running into compartment 1 stops. Therefore, the cold water valve is the leaking valve.

Once the leaking valve(s) has been determined, install a valve repair kit onto the leaking valve port or replace the entire leaking valve. Refer to the Parts manual for your washer-extractor for valve and valve repair kit part numbers.

With electrical power removed from the machine, water is running continuously into compartment 2 of the supply dispenser.

Using the "Water Running Continuously" schematic, follow the hose from compartment 2 of the supply dispenser back through the vacuum breaker to the cold water valve at V4.

Install a valve repair kit onto the cold water valve or replace the valve. Refer to the Parts manual for your washer-extractor for valve and valve repair kit part numbers.

With electrical power removed from the machine, water is running continuously into compartment 3 of the supply dispenser.

Using the "Water Running Continuously" schematic, follow the hose from compartment 3 of the supply dispenser back through the vacuum breaker to the cold water valve at V5.

Install a valve repair kit onto the hot water valve or replace the valve. Refer to the Parts manual for your washer-extractor for valve and valve repair kit part numbers.

With electrical power removed from the machine, water is running continuously into the bottom of the washer-extractor.

To determine which of the valves is leaking, turn off the water supply to each of the valves, one valve at a time. When the water supply is removed from the leaking valve, the water running into the bottom of the washer-extractor will stop.

For example, when the water supply is removed from the hot water valve at V1, the water continues to run into the bottom of the washer-extractor. However, when the water supply is removed from the cold water valve at V2, the water running into the bottom of the washer-extractor stops. Therefore, the cold water valve at V2 is the leaking valve.

Once the leaking valve(s) has been determined, install a valve repair kit onto the leaking valve or replace the leaking valve. Refer to the Parts manual for your washer-extractor for valve and valve repair kit part numbers.

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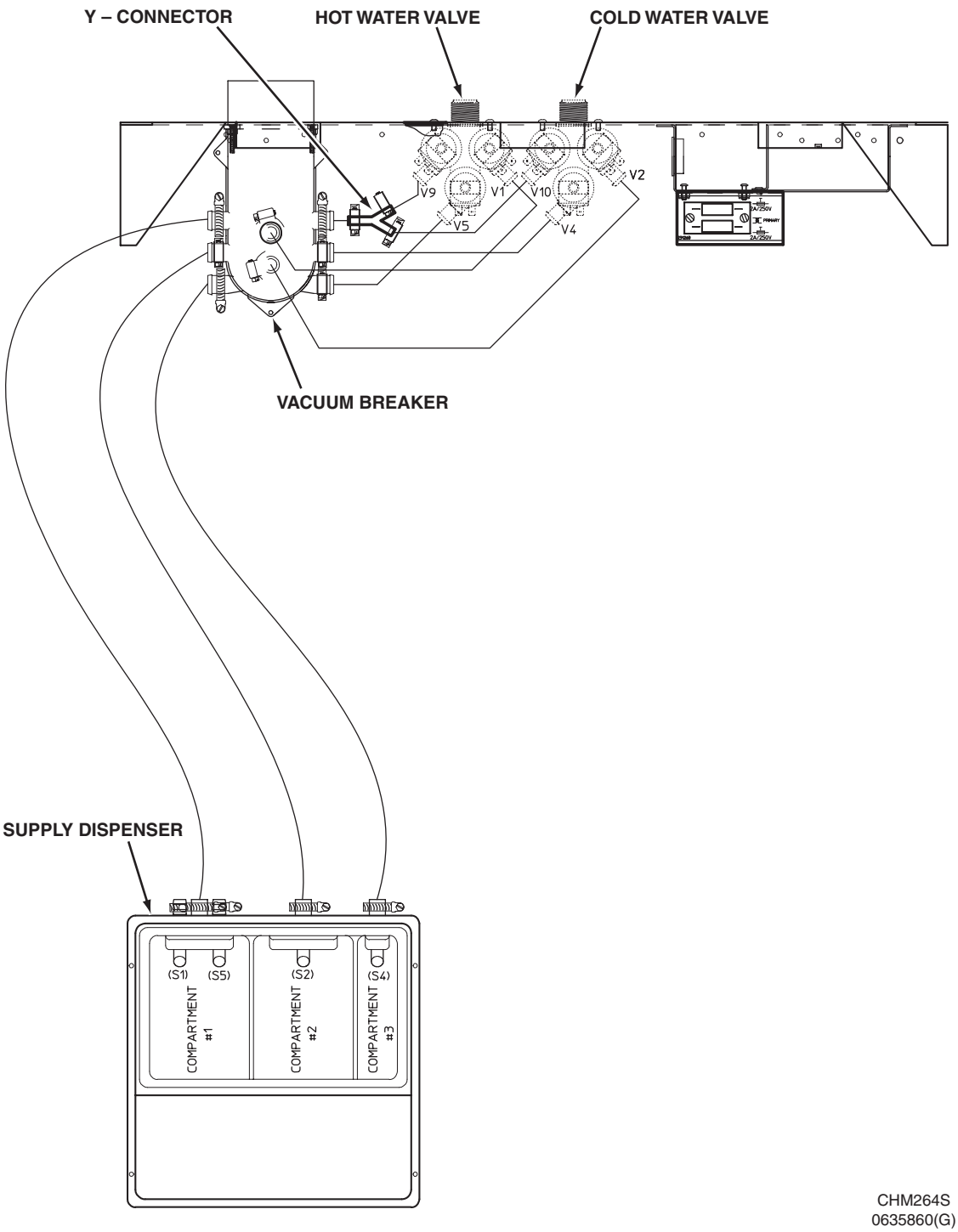
Water Running Continuously Illustration



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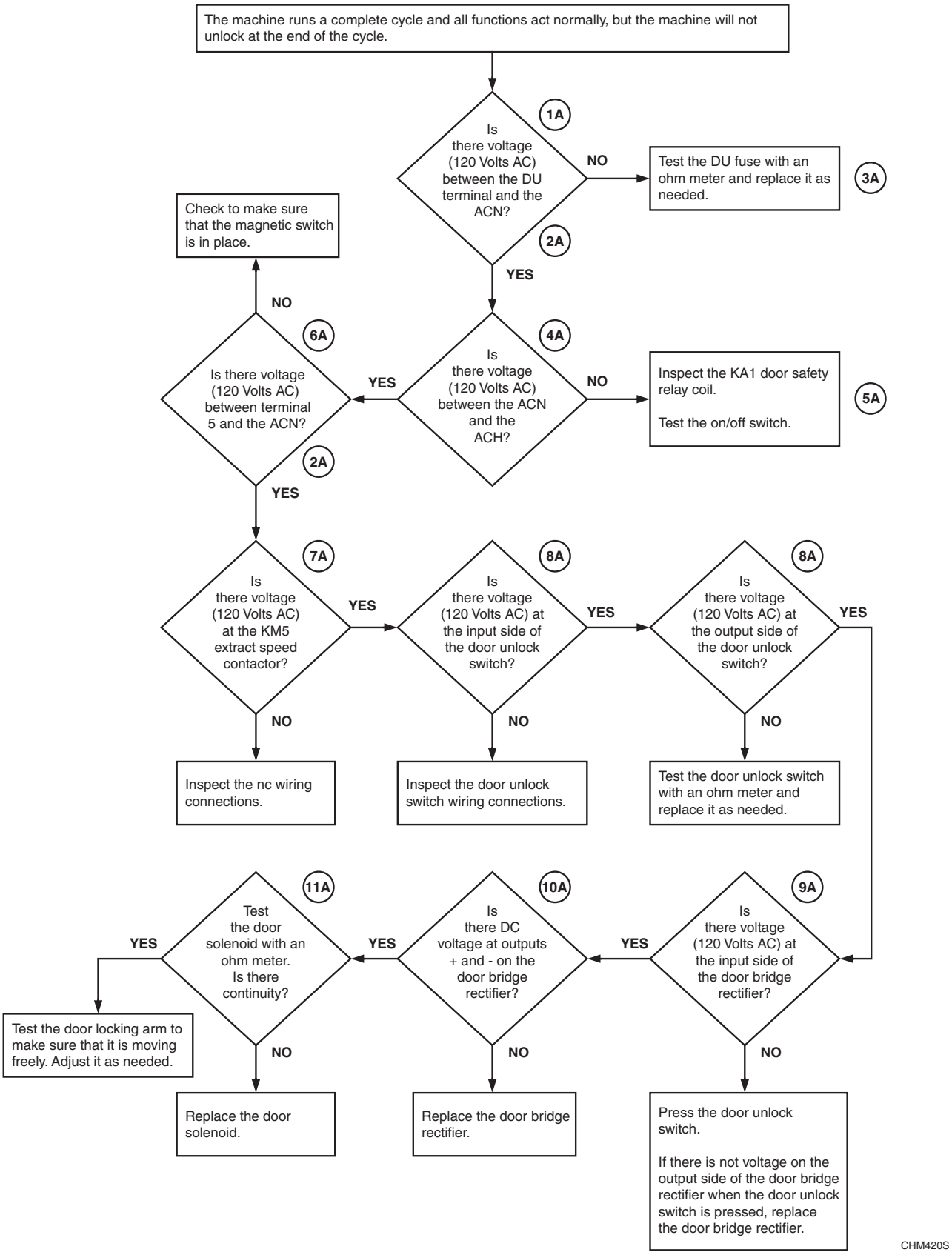
24. Door Unlocking Malfunction (OPL)


The machine runs a complete cycle and all functions act normally, but the machine will not unlock at the end of the cycle.
1A
Is there voltage (120 Volts AC) between the DU terminal and the ACN?
NO
Test the DU fuse with an ohm meter and replace it as needed.
3A
2A
YES
Check to make sure that the magnetic switch is in place.
NO
6A
Is there voltage (120 Volts AC) between terminal 5 and the ACN?
YES
4A
Is there voltage (120 Volts AC) between the ACN and the ACH?
NO
Inspect the KA1 door safety relay coil.
Test the on/off switch.
5A
2A
YES
7A
Is there voltage (120 Volts AC) at the KM5 extract speed contactor?
YES
8A
Is there voltage (120 Volts AC) at the input side of the door unlock switch?
YES
8A
Is there voltage (120 Volts AC) at the output side of the door unlock switch?
YES
NO
Inspect the nc wiring connections.
NO
Inspect the door unlock switch wiring connections.
NO
Test the door unlock switch with an ohm meter and replace it as needed.
11A
Test the door solenoid with an ohm meter. Is there continuity?
YES
10A
Is there DC voltage at outputs + and - on the door bridge rectifier?
YES
9A
Is there voltage (120 Volts AC) at the input side of the door bridge rectifier?
YES
Test the door locking arm to make sure that it is moving freely. Adjust it as needed.
NO
Replace the door solenoid.
NO
Replace the door bridge rectifier.
NO
Press the door unlock switch.
If there is not voltage on the output side of the door bridge rectifier when the door unlock switch is pressed, replace the door bridge rectifier.
CHM420S

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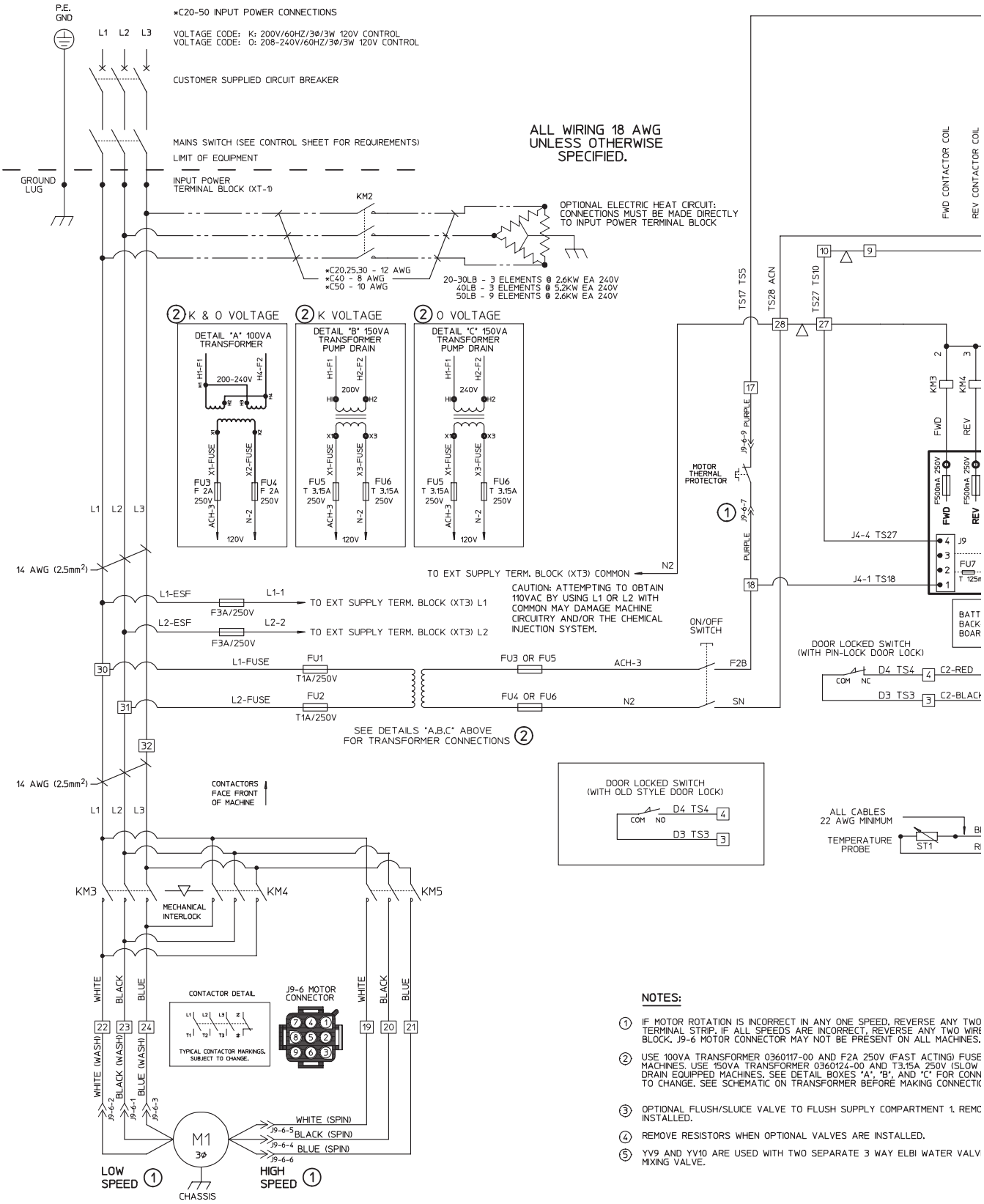
Door Unlocking Malfunction (OPL) (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
FU3 F 2A 250V
FU4 F 2A 250V
FU5 T 3.15A 250V
FU6 T 3.15A 250V
120V
14 AWG (2.5mm²)
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
F3A/250V
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
L1-FUSE FU1 T1A/250V
L2-FUSE FU2 T1A/250V
FU3 OR FU5
FU4 OR FU6
ACH-3
N2
F2B
SN
ON/OFF SWITCH
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
KM3
KM4
KM5
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
WHITE
BLACK
BLUE
WHITE (WASH)
BLACK (WASH)
BLUE (WASH)
M1 3Ø
WHITE (SPIN)
BLACK (SPIN)
BLUE (SPIN)
LOW SPEED 1
HIGH SPEED 1
CHASSIS
FWD CONTACTOR COIL
REV CONTACTOR COIL
TS17 TS5
TS28 ACN
TS27 TS10
MOTOR THERMAL PROTECTOR
J9-4-9 PURPLE
J9-6-7 PURPLE
J4-4 TS27
J4-1 TS18
F500mA 250V
FU7 T 125m
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
D4 TS4
D3 TS3
C2-RED
C2-BLACK
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
ST1
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTI
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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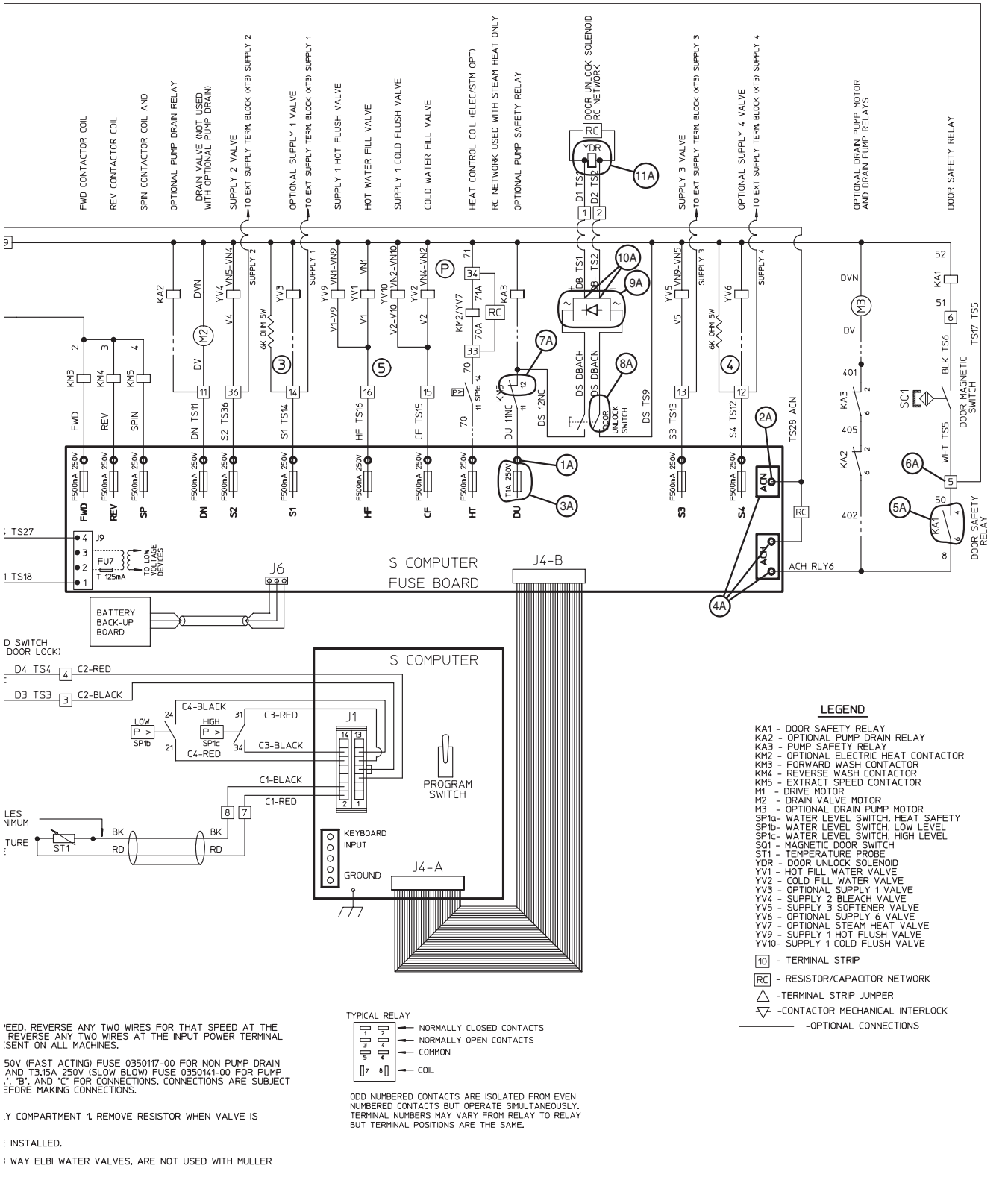
Door Unlocking Malfunction (OPL) (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
DOOR MAGNETIC SWITCH
DOOR UNLOCK SWITCH
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
ACH RLY6
TS28 ACN
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
EED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
SENT ON ALL MACHINES.
50V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
EFORE MAKING CONNECTIONS.
.Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
INSTALLED.
WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

CHM421S
607072(P)

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25. Door Unlocking Malfunction (Coin)

When coins are placed into the coin slot, do they fall into the coin vault and does the coin drop sensor register that coins have been entered? Refer to *Figure 1* for the path that coins follow when the drop is working properly.

No

Is proper electrical power supplied to the coin drop?

No → Refer to the wiring diagram supplied with the machine for connection information.

Yes

Is the machine level?

No → Refer to the installation manual supplied with the machine for instructions on leveling the machine.

Yes

Is the coin drop clean?

No

1. Disconnect electrical power to the machine and the coin drop.

2. Remove the coin drop from the machine.

3. If lint is preventing coins from rolling through the coin drop, blow compressed air through the coin entry and along the side of the coin drop. Refer to *Figure 2*.

4. Insert a coin into the coin drop. If the coin does not fall through the drop, continue to step 5.

5. Remove the cotter pin from the top of the drop. Refer to *Figure 2*. Save the pin for reinstallation when the cleaning of the coin drop is complete.

6. Move the metal clip closer to the sensor so that it comes off of the frame. Refer to *Figure 2*.

7. Remove the coin return from the coin drop frame. Refer to *Figure 3*.

8. Check the path in the coin drop for lint and residue. If lint or light residue is present, use a cotton swab to remove it. If heavy residue is present, it may be necessary to first scrape off the excessive residue and then to use a cotton swab dipped in water or isopropyl alcohol to remove the remainder of the residue. Refer to *Figure 4*.

9. Check the return pendulum to verify it swings freely. If the pendulum does not swing freely, spray the pendulum pivot point with Teflon-based lubricant and move the pendulum back and forth 3 times. An additional application of Teflon-based lubricant may be necessary to ensure the pendulum swings freely. Refer to *Figure 5*.

10. Check the coin drop sensor for dust or dirt on the eyes. Wipe the eyes with a dry cotton swab. Refer to *Figure 6*. IMPORTANT: Do not use isopropyl alcohol to clean the electronic sensor or eyes.

11. Reinstall the coin return onto the coin drop frame.

12. Reinstall the metal clip and slide toward the coin insert slot. All cotter pin holes must line up.

13. Reinstall the cotter pin.

14. Place the coin drop on a level surface to verify that coins follow the correct path to the coin drop. It may be necessary to lift the coin drop to allow the coin to follow through the sensor.

15. Reinstall the coin drop into the machine.

16. Reconnect electrical power to the machine and coin drop.

17. Insert a coin into the coin drop to verify that the coin drop is operating properly.

If the coin drop does not operate properly after the above steps have been completed, corrosion of the metal or vandalized components within the coin drop may be preventing it from functioning properly. Replace the coin drop.

CHM442S

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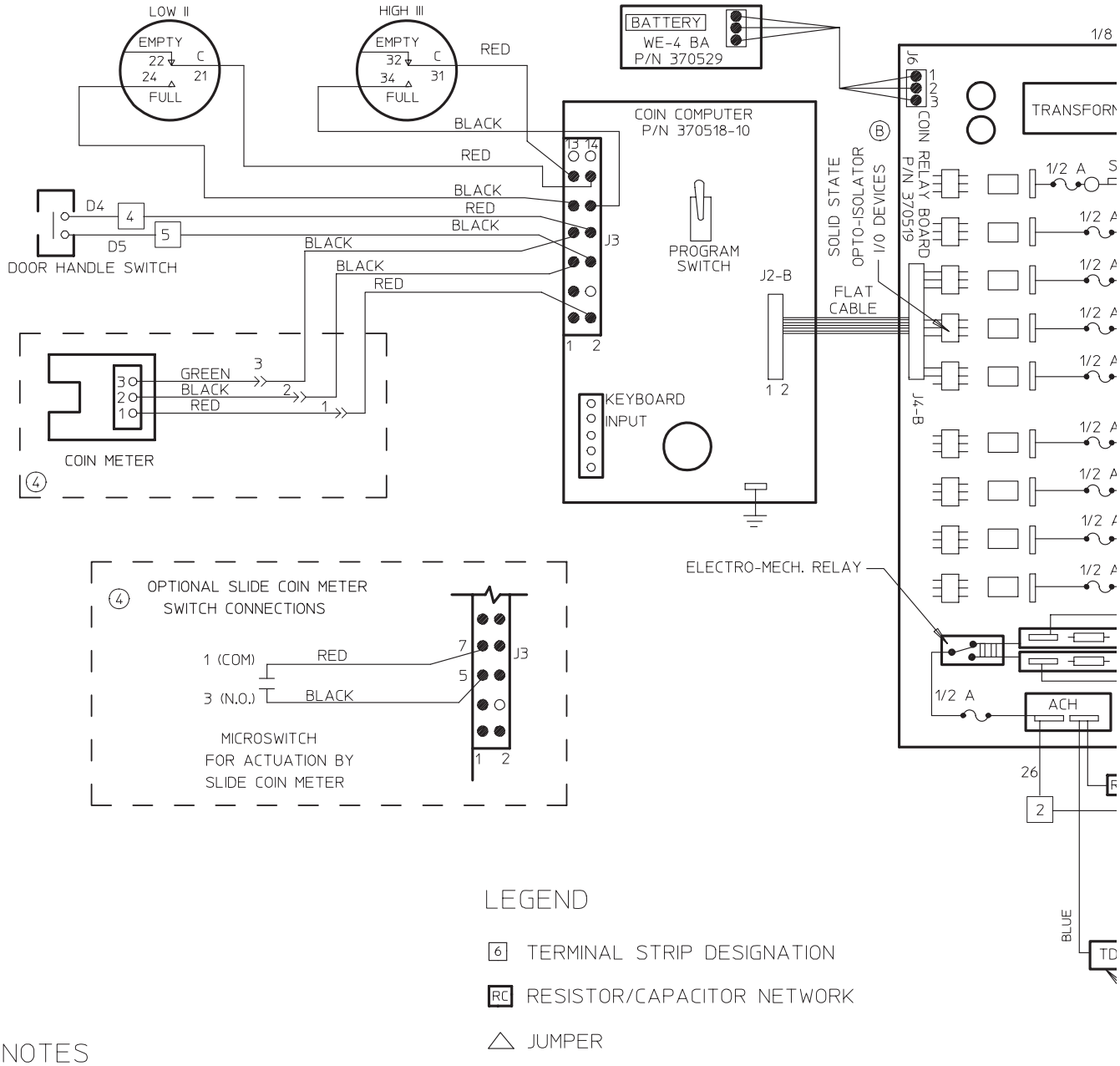
Door Unlocking Malfunction (Coin) (Sheet 1 of 2)



LEGEND

6 TERMINAL STRIP DESIGNATION

RC RESISTOR/CAPACITOR NETWORK

△ JUMPER

NOTES

1. CAN BE USED AS SUPPLY 3 OR COIN BLOCKING COIL.
2. SUPPLIES WILL COME ON WITH FILL.
3. CAPACITOR RATED 240uF, 450VDC.
4. OPTIONAL SLIDE COIN METER SWITCH CONNECTION

NOTE: Refer to the wiring diagram supplied with your machine.

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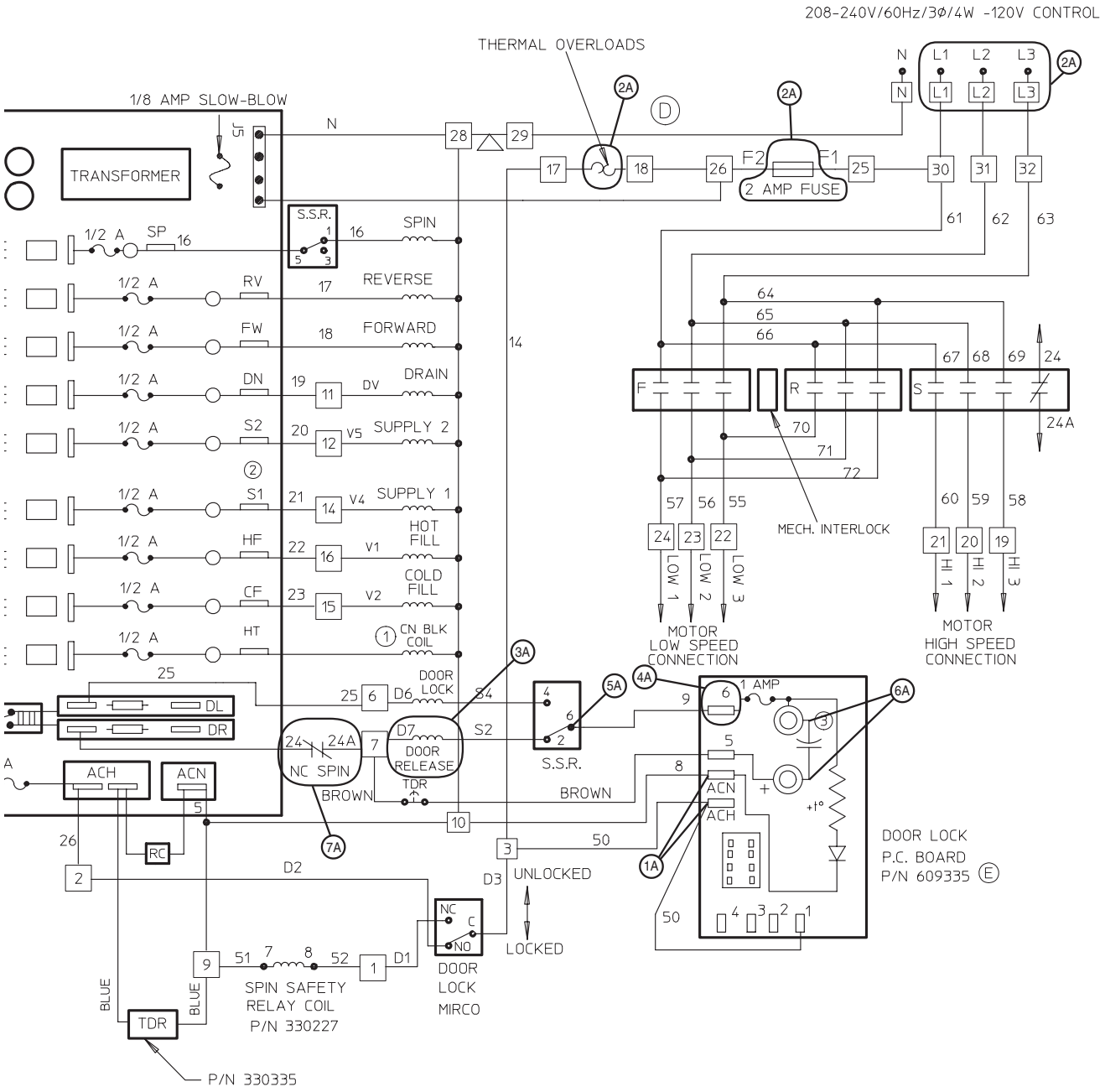
Door Unlocking Malfunction (Coin) (Sheet 2 of 2)



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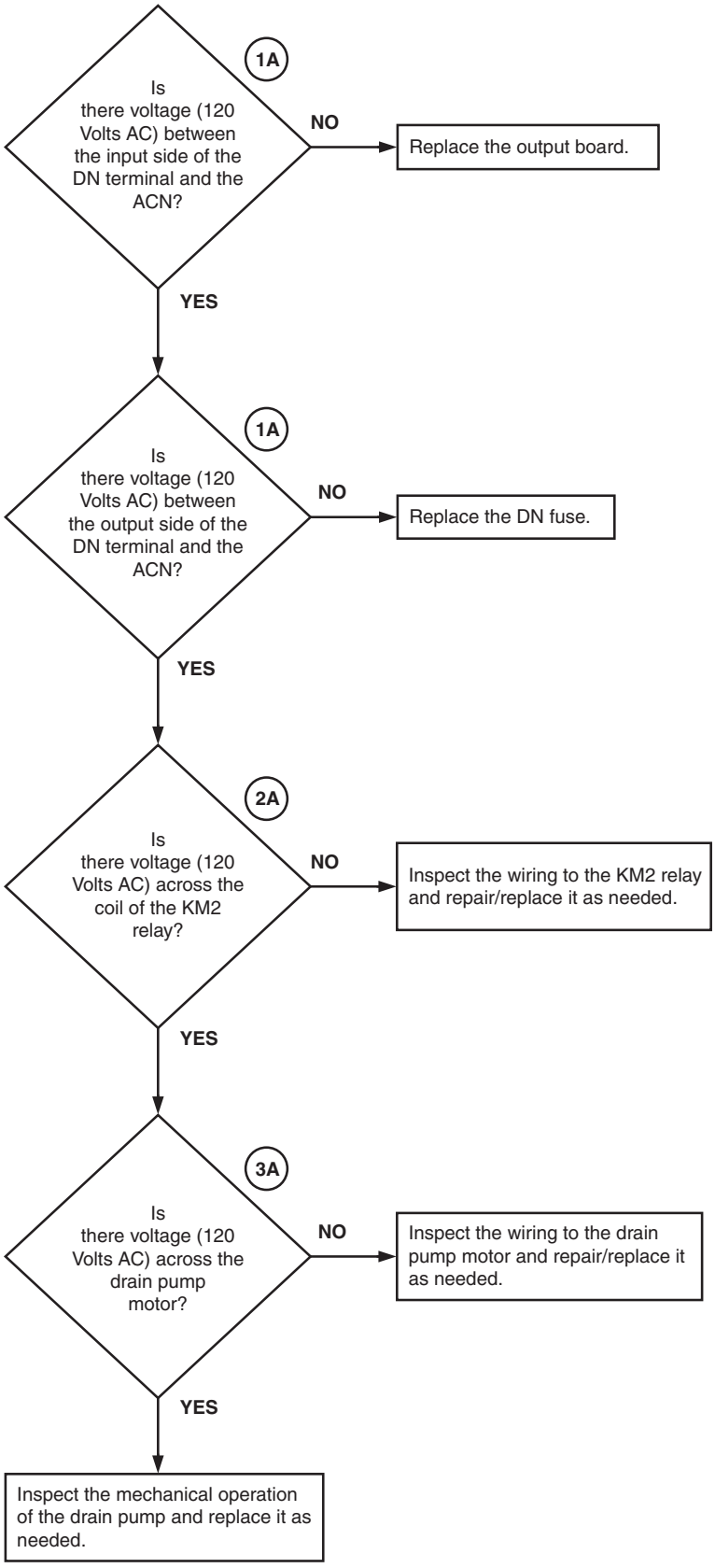
26. Pump Drain Analysis


1A
Is there voltage (120 Volts AC) between the input side of the DN terminal and the ACN?
NO
Replace the output board.
YES
1A
Is there voltage (120 Volts AC) between the output side of the DN terminal and the ACN?
NO
Replace the DN fuse.
YES
2A
Is there voltage (120 Volts AC) across the coil of the KM2 relay?
NO
Inspect the wiring to the KM2 relay and repair/replace it as needed.
YES
3A
Is there voltage (120 Volts AC) across the drain pump motor?
NO
Inspect the wiring to the drain pump motor and repair/replace it as needed.
YES
Inspect the mechanical operation of the drain pump and replace it as needed.

CHM428S

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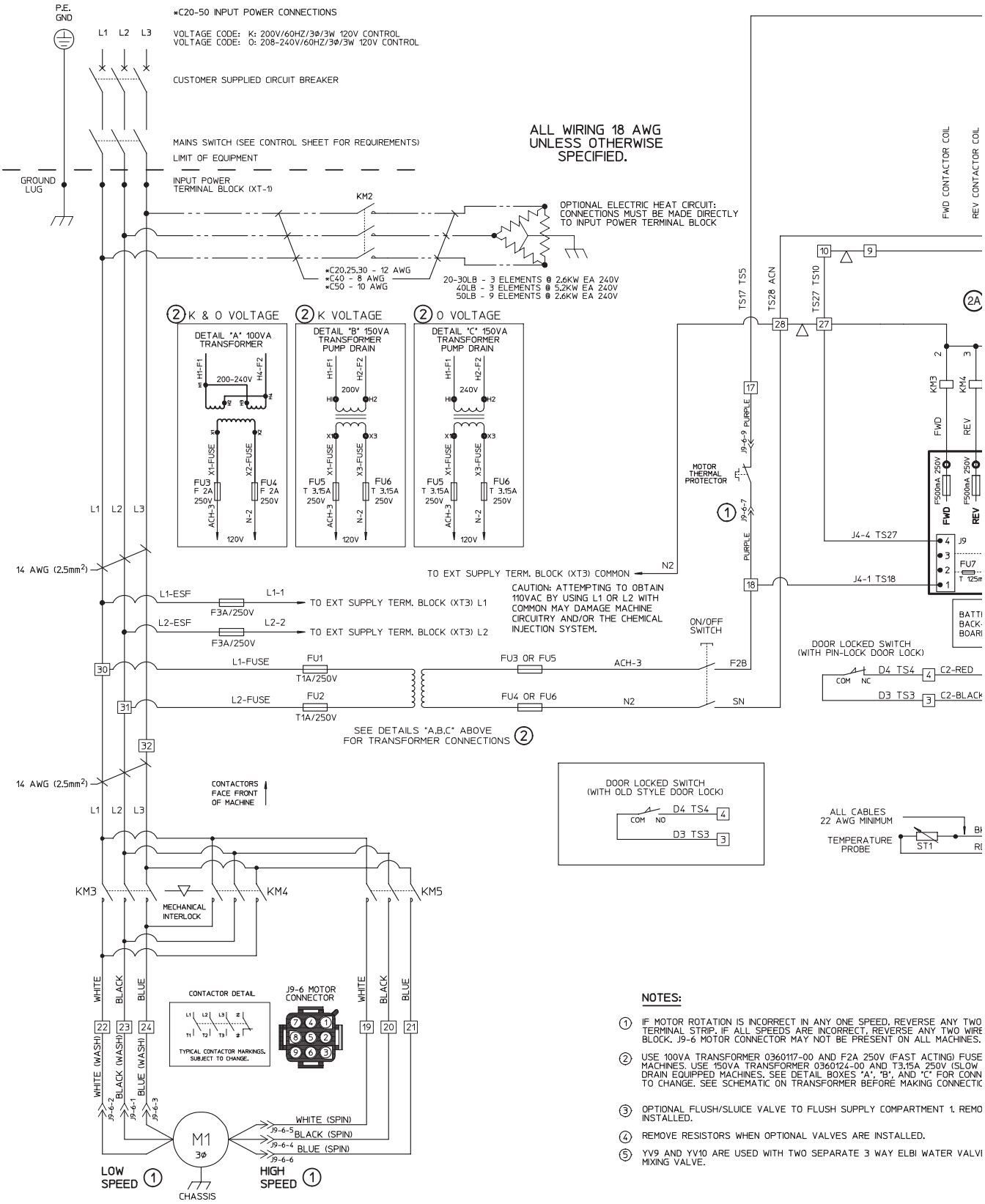
Pump Drain Analysis (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
2 K & O VOLTAGE
2 K VOLTAGE
2 O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS 2
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
J9-6 MOTOR CONNECTOR
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
ON/OFF SWITCH
MOTOR THERMAL PROTECTOR
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
FWD CONTACTOR COIL
REV CONTACTOR COIL
LOW SPEED 1
HIGH SPEED 1
CHASSIS
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B" AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTIC
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALVI MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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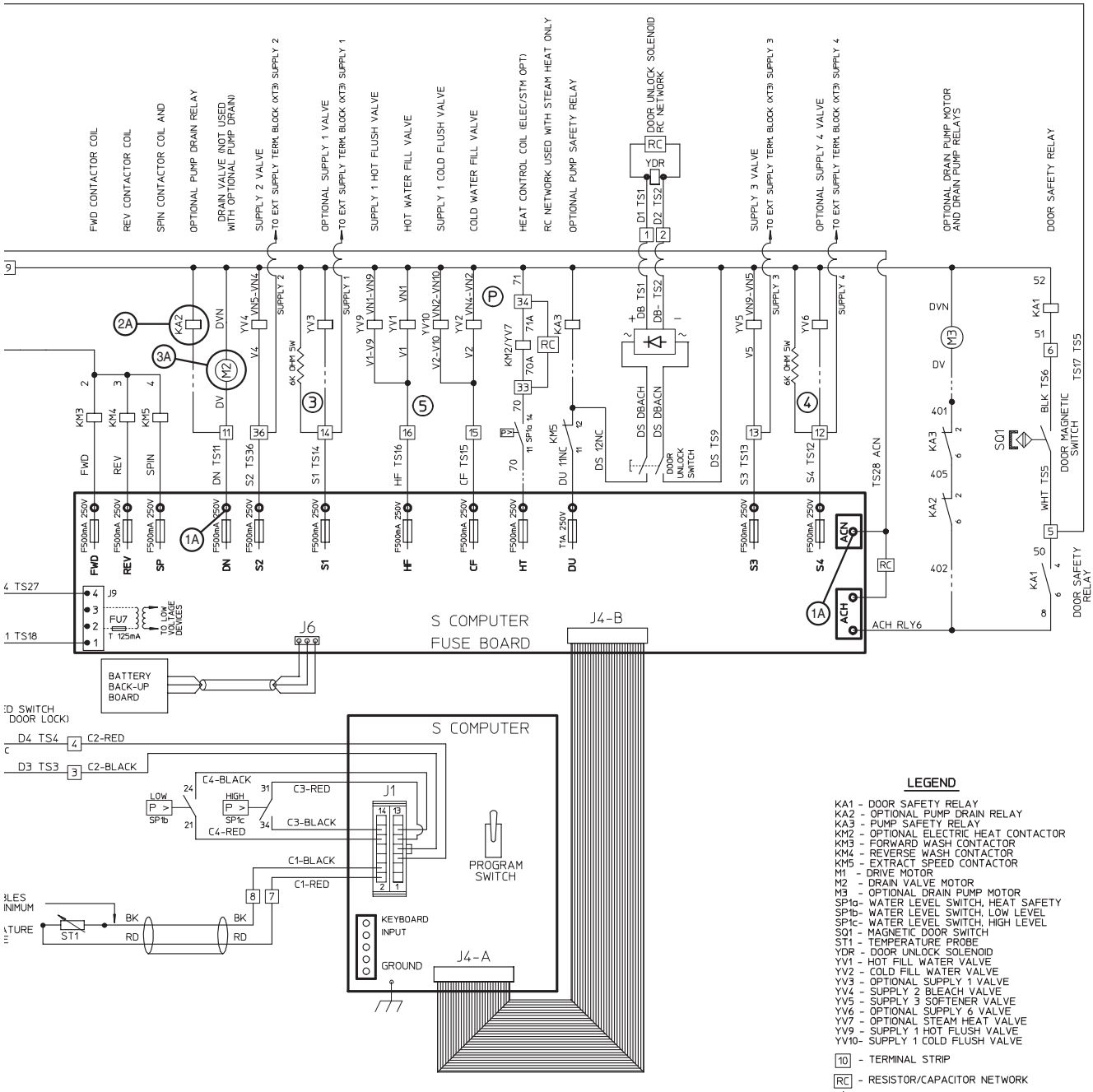
Pump Drain Analysis (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J4-B
J6
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
DOOR MAGNETIC SWITCH
ACH RLY6
TS28 ACN
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
PEED. REVERSE ANY TWO WIRES FOR THAT SPEED AT THE
, REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL
ESENT ON ALL MACHINES.
250V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN
AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP
', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT
EFORE MAKING CONNECTIONS.
Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
E INSTALLED.
3 WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

CHM429S
607072(P)

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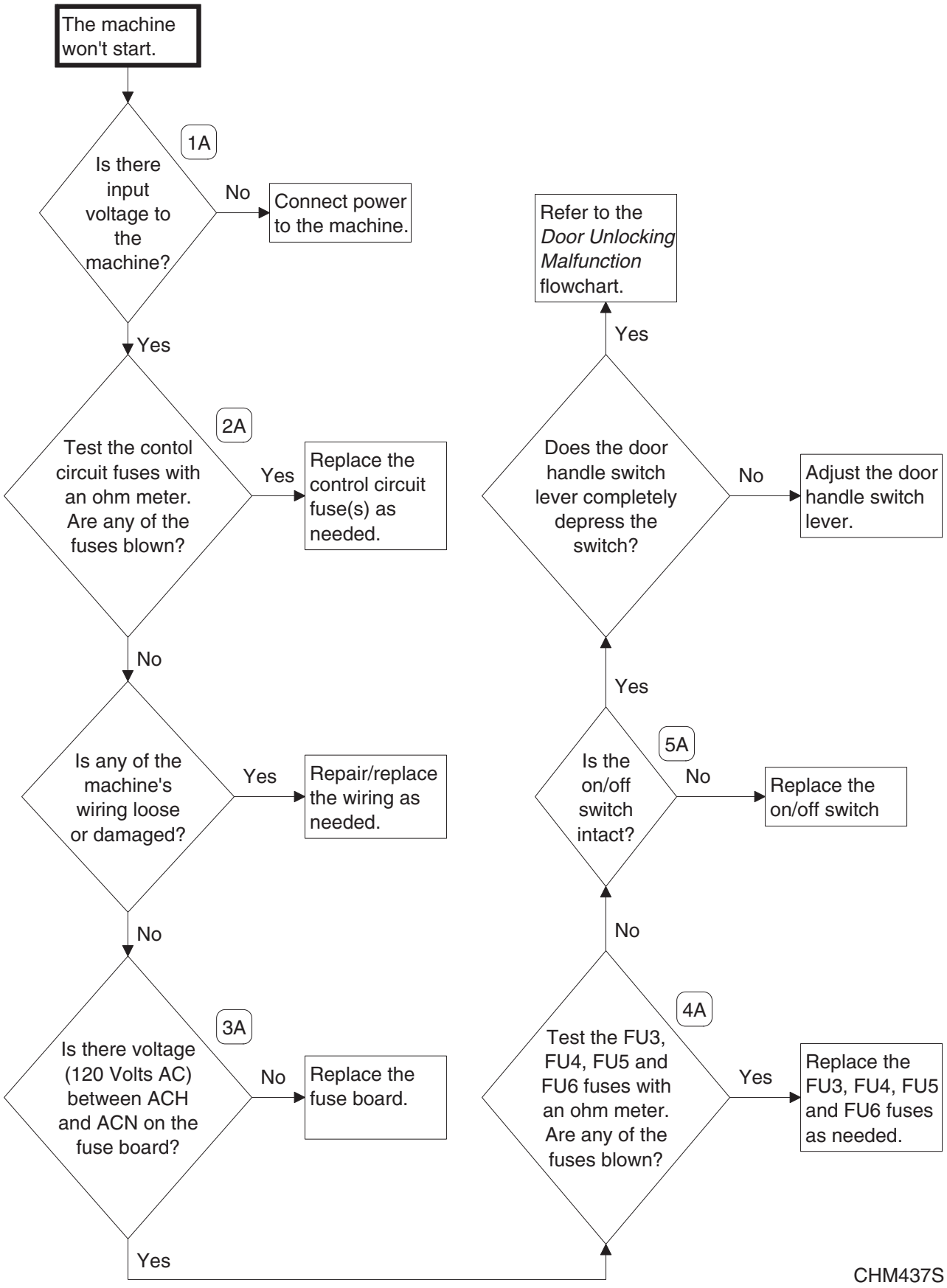
27. Machine Won't Start (OPL)


The machine won't start.
1A
Is there input voltage to the machine?
No
Connect power to the machine.
Yes
2A
Test the contol circuit fuses with an ohm meter. Are any of the fuses blown?
Yes
Replace the control circuit fuse(s) as needed.
No
Is any of the machine's wiring loose or damaged?
Yes
Repair/replace the wiring as needed.
No
3A
Is there voltage (120 Volts AC) between ACH and ACN on the fuse board?
No
Replace the fuse board.
Yes
4A
Test the FU3, FU4, FU5 and FU6 fuses with an ohm meter. Are any of the fuses blown?
Yes
Replace the FU3, FU4, FU5 and FU6 fuses as needed.
No
5A
Is the on/off switch intact?
No
Replace the on/off switch
Yes
Does the door handle switch lever completely depress the switch?
No
Adjust the door handle switch lever.
Yes
Refer to the *Door Unlocking Malfunction* flowchart.
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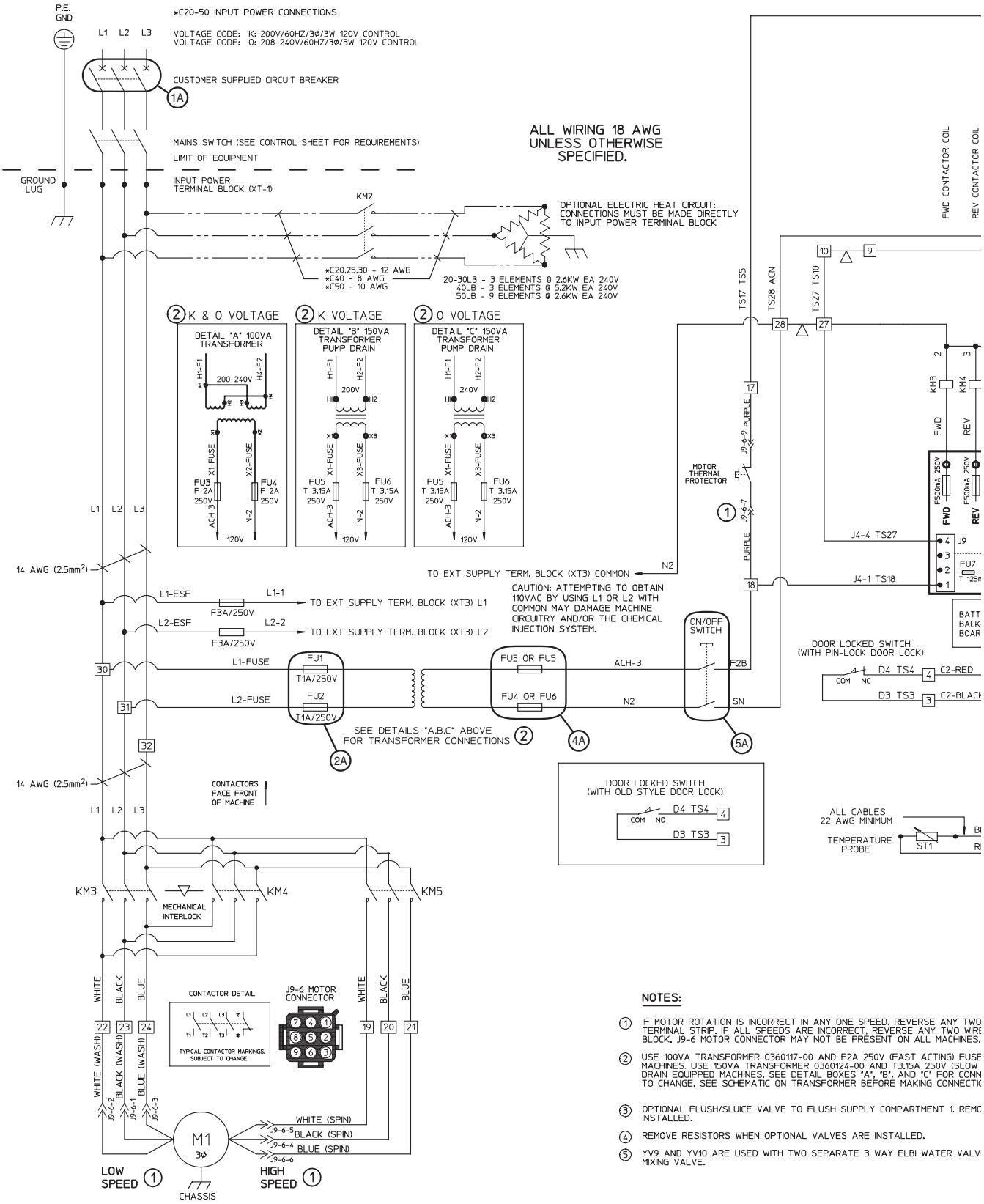
Machine Won't Start (OPL) (Sheet 1 of 2)


*C20-50 INPUT POWER CONNECTIONS
VOLTAGE CODE: K: 200V/60HZ/3Ø/3W 120V CONTROL
VOLTAGE CODE: O: 208-240V/60HZ/3Ø/3W 120V CONTROL
CUSTOMER SUPPLIED CIRCUIT BREAKER
MAINS SWITCH (SEE CONTROL SHEET FOR REQUIREMENTS)
LIMIT OF EQUIPMENT
INPUT POWER TERMINAL BLOCK (XT-1)
GROUND LUG
ALL WIRING 18 AWG UNLESS OTHERWISE SPECIFIED.
OPTIONAL ELECTRIC HEAT CIRCUIT: CONNECTIONS MUST BE MADE DIRECTLY TO INPUT POWER TERMINAL BLOCK
*C20,25,30 - 12 AWG
*C40 - 8 AWG
*C50 - 10 AWG
20-30LB - 3 ELEMENTS @ 2.6KW EA 240V
40LB - 3 ELEMENTS @ 5.2KW EA 240V
50LB - 9 ELEMENTS @ 2.6KW EA 240V
K & O VOLTAGE
K VOLTAGE
O VOLTAGE
DETAIL "A" 100VA TRANSFORMER
DETAIL "B" 150VA TRANSFORMER PUMP DRAIN
DETAIL "C" 150VA TRANSFORMER PUMP DRAIN
TO EXT SUPPLY TERM. BLOCK (XT3) COMMON
TO EXT SUPPLY TERM. BLOCK (XT3) L1
TO EXT SUPPLY TERM. BLOCK (XT3) L2
CAUTION: ATTEMPTING TO OBTAIN 110VAC BY USING L1 OR L2 WITH COMMON MAY DAMAGE MACHINE CIRCUITRY AND/OR THE CHEMICAL INJECTION SYSTEM.
SEE DETAILS "A,B,C" ABOVE FOR TRANSFORMER CONNECTIONS
DOOR LOCKED SWITCH (WITH PIN-LOCK DOOR LOCK)
DOOR LOCKED SWITCH (WITH OLD STYLE DOOR LOCK)
ON/OFF SWITCH
MOTOR THERMAL PROTECTOR
CONTACTORS FACE FRONT OF MACHINE
MECHANICAL INTERLOCK
CONTACTOR DETAIL
J9-6 MOTOR CONNECTOR
TYPICAL CONTACTOR MARKINGS. SUBJECT TO CHANGE.
ALL CABLES 22 AWG MINIMUM
TEMPERATURE PROBE
LOW SPEED
HIGH SPEED
CHASSIS
FWD CONTACTOR COIL
REV CONTACTOR COIL
NOTES:
1 IF MOTOR ROTATION IS INCORRECT IN ANY ONE SPEED, REVERSE ANY TWO TERMINAL STRIP. IF ALL SPEEDS ARE INCORRECT, REVERSE ANY TWO WIRE BLOCK. J9-6 MOTOR CONNECTOR MAY NOT BE PRESENT ON ALL MACHINES.
2 USE 100VA TRANSFORMER 0360117-00 AND F2A 250V (FAST ACTING) FUSE MACHINES. USE 150VA TRANSFORMER 0360124-00 AND T3.15A 250V (SLOW DRAIN EQUIPPED MACHINES. SEE DETAIL BOXES "A", "B", AND "C" FOR CONN TO CHANGE. SEE SCHEMATIC ON TRANSFORMER BEFORE MAKING CONNECTI
3 OPTIONAL FLUSH/SLUICE VALVE TO FLUSH SUPPLY COMPARTMENT 1. REMO INSTALLED.
4 REMOVE RESISTORS WHEN OPTIONAL VALVES ARE INSTALLED.
5 YV9 AND YV10 ARE USED WITH TWO SEPARATE 3 WAY ELBI WATER VALV MIXING VALVE.

NOTE: Refer to the wiring diagram supplied with your machine.

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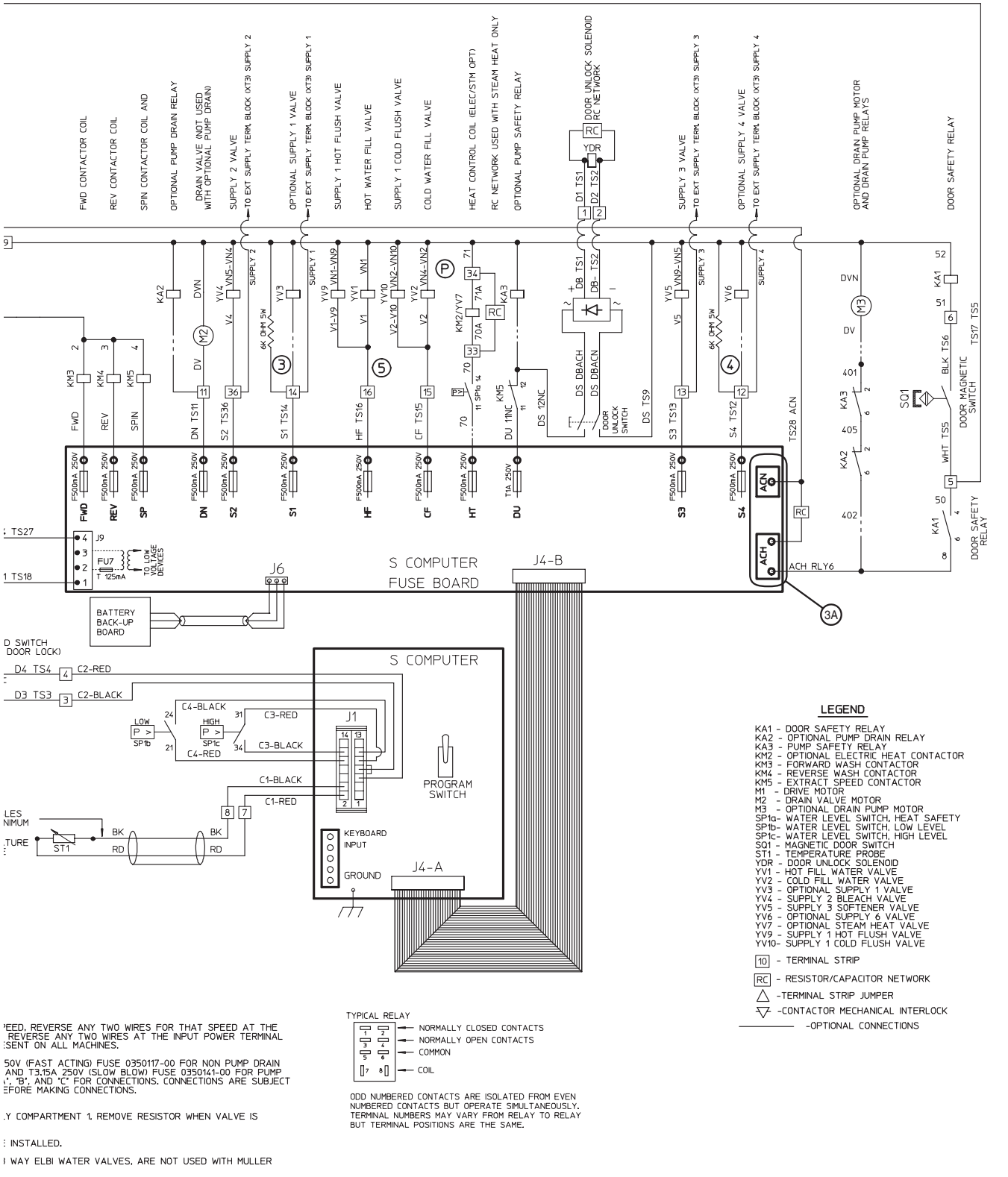
Machine Won't Start (OPL) (Sheet 2 of 2)


FWD CONTACTOR COIL
REV CONTACTOR COIL
SPIN CONTACTOR COIL AND
OPTIONAL PUMP DRAIN RELAY
DRAIN VALVE (NOT USED WITH OPTIONAL PUMP DRAIN)
SUPPLY 2 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 2
OPTIONAL SUPPLY 1 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 1
SUPPLY 1 HOT FLUSH VALVE
HOT WATER FILL VALVE
SUPPLY 1 COLD FLUSH VALVE
COLD WATER FILL VALVE
HEAT CONTROL COIL (ELEC/STM OPT)
RC NETWORK USED WITH STEAM HEAT ONLY
OPTIONAL PUMP SAFETY RELAY
DOOR UNLOCK SOLENOID RC NETWORK
SUPPLY 3 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 3
OPTIONAL SUPPLY 4 VALVE
TO EXT SUPPLY TERM. BLOCK (XT3) SUPPLY 4
OPTIONAL DRAIN PUMP MOTOR AND DRAIN PUMP RELAYS
DOOR SAFETY RELAY
S COMPUTER FUSE BOARD
J6
J4-B
BATTERY BACK-UP BOARD
S COMPUTER
J1
PROGRAM SWITCH
KEYBOARD INPUT
GROUND
J4-A
DOOR MAGNETIC SWITCH
DOOR SAFETY RELAY
ACH RLY6
TS28 ACN
LEGEND
KA1 - DOOR SAFETY RELAY
KA2 - OPTIONAL PUMP DRAIN RELAY
KA3 - PUMP SAFETY RELAY
KM2 - OPTIONAL ELECTRIC HEAT CONTACTOR
KM3 - FORWARD WASH CONTACTOR
KM4 - REVERSE WASH CONTACTOR
KM5 - EXTRACT SPEED CONTACTOR
M1 - DRIVE MOTOR
M2 - DRAIN VALVE MOTOR
M3 - OPTIONAL DRAIN PUMP MOTOR
SP1a- WATER LEVEL SWITCH, HEAT SAFETY
SP1b- WATER LEVEL SWITCH, LOW LEVEL
SP1c- WATER LEVEL SWITCH, HIGH LEVEL
SQ1 - MAGNETIC DOOR SWITCH
ST1 - TEMPERATURE PROBE
YDR - DOOR UNLOCK SOLENOID
YV1 - HOT FILL WATER VALVE
YV2 - COLD FILL WATER VALVE
YV3 - OPTIONAL SUPPLY 1 VALVE
YV4 - SUPPLY 2 BLEACH VALVE
YV5 - SUPPLY 3 SOFTENER VALVE
YV6 - OPTIONAL SUPPLY 6 VALVE
YV7 - OPTIONAL STEAM HEAT VALVE
YV9 - SUPPLY 1 HOT FLUSH VALVE
YV10- SUPPLY 1 COLD FLUSH VALVE
10 - TERMINAL STRIP
RC - RESISTOR/CAPACITOR NETWORK
-TERMINAL STRIP JUMPER
-CONTACTOR MECHANICAL INTERLOCK
-OPTIONAL CONNECTIONS
TYPICAL RELAY
NORMALLY CLOSED CONTACTS
NORMALLY OPEN CONTACTS
COMMON
COIL
ODD NUMBERED CONTACTS ARE ISOLATED FROM EVEN NUMBERED CONTACTS BUT OPERATE SIMULTANEOUSLY. TERMINAL NUMBERS MAY VARY FROM RELAY TO RELAY BUT TERMINAL POSITIONS ARE THE SAME.
EED, REVERSE ANY TWO WIRES FOR THAT SPEED AT THE REVERSE ANY TWO WIRES AT THE INPUT POWER TERMINAL SENT ON ALL MACHINES.
50V (FAST ACTING) FUSE 0350117-00 FOR NON PUMP DRAIN AND T3.15A 250V (SLOW BLOW) FUSE 0350141-00 FOR PUMP ', 'B', AND 'C' FOR CONNECTIONS. CONNECTIONS ARE SUBJECT EFORE MAKING CONNECTIONS.
.Y COMPARTMENT 1. REMOVE RESISTOR WHEN VALVE IS
INSTALLED.
WAY ELBI WATER VALVES, ARE NOT USED WITH MULLER

CHM425S
607072(P)

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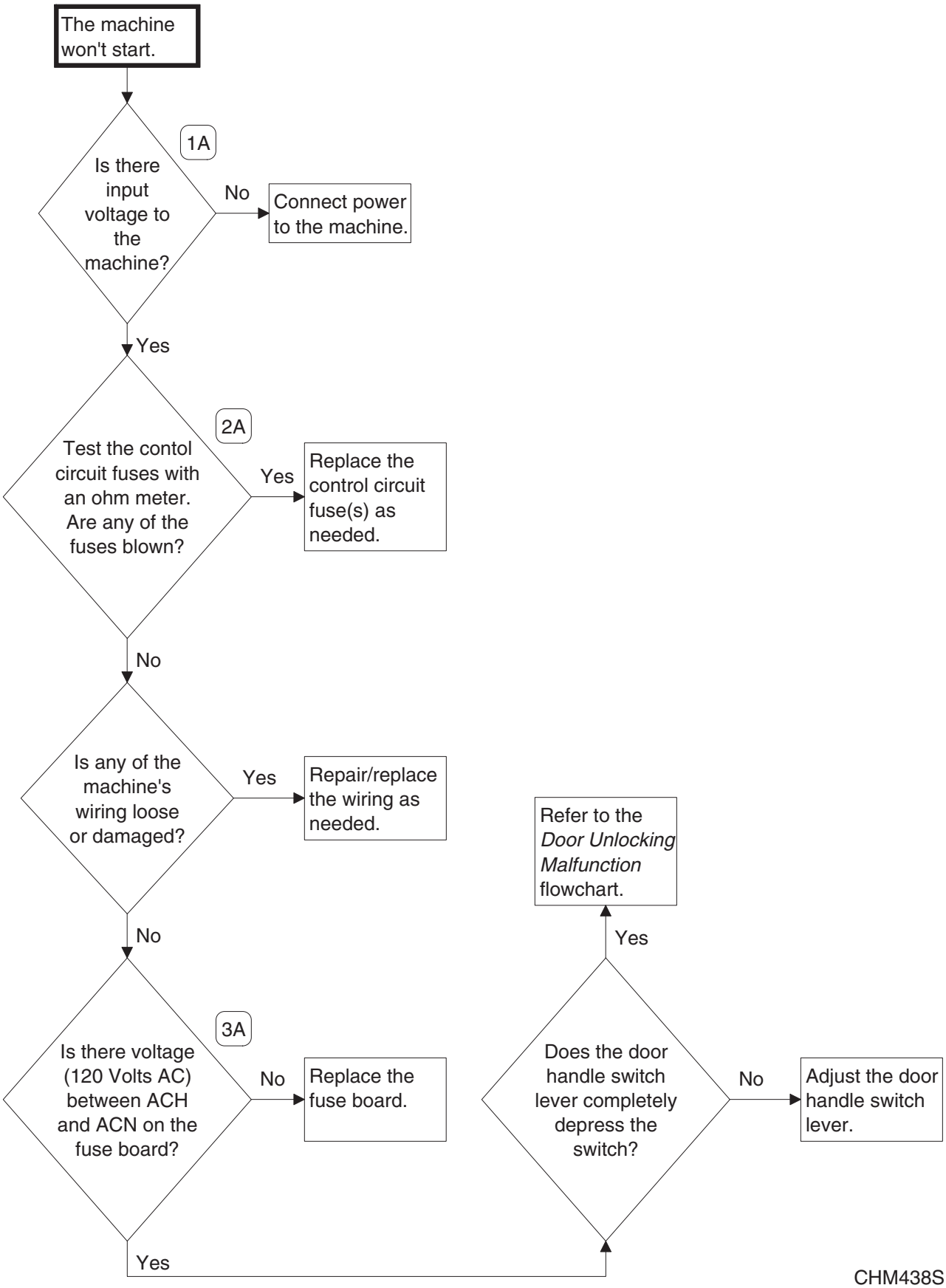
28. Machine Won't Start (Coin)


The machine won't start.
1A
Is there input voltage to the machine?
No
Connect power to the machine.
Yes
2A
Test the contol circuit fuses with an ohm meter. Are any of the fuses blown?
Yes
Replace the control circuit fuse(s) as needed.
No
Is any of the machine's wiring loose or damaged?
Yes
Repair/replace the wiring as needed.
No
3A
Is there voltage (120 Volts AC) between ACH and ACN on the fuse board?
No
Replace the fuse board.
Yes
Does the door handle switch lever completely depress the switch?
No
Adjust the door handle switch lever.
Yes
Refer to the *Door Unlocking Malfunction* flowchart.
Yes
CHM438S

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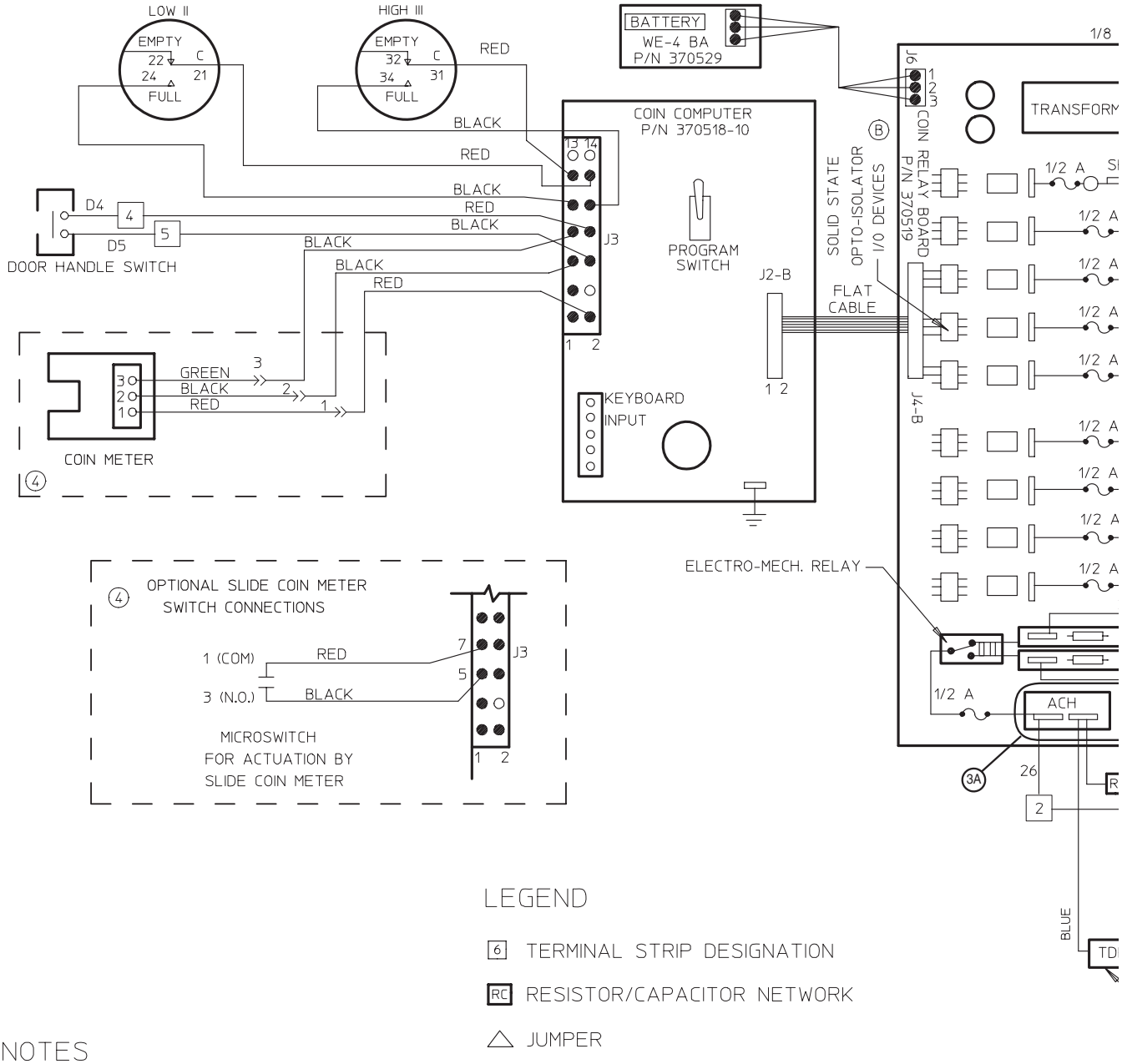
Machine Won't Start (Coin) (Sheet 1 of 2)



LEGEND

- 6 TERMINAL STRIP DESIGNATION
- RC RESISTOR/CAPACITOR NETWORK
- △ JUMPER

NOTES

1. CAN BE USED AS SUPPLY 3 OR COIN BLOCKING COIL.
2. SUPPLIES WILL COME ON WITH FILL.
3. CAPACITOR RATED 240uF, 450VDC.
4. OPTIONAL SLIDE COIN METER SWITCH CONNECTION

NOTE: Refer to the wiring diagram supplied with your machine.

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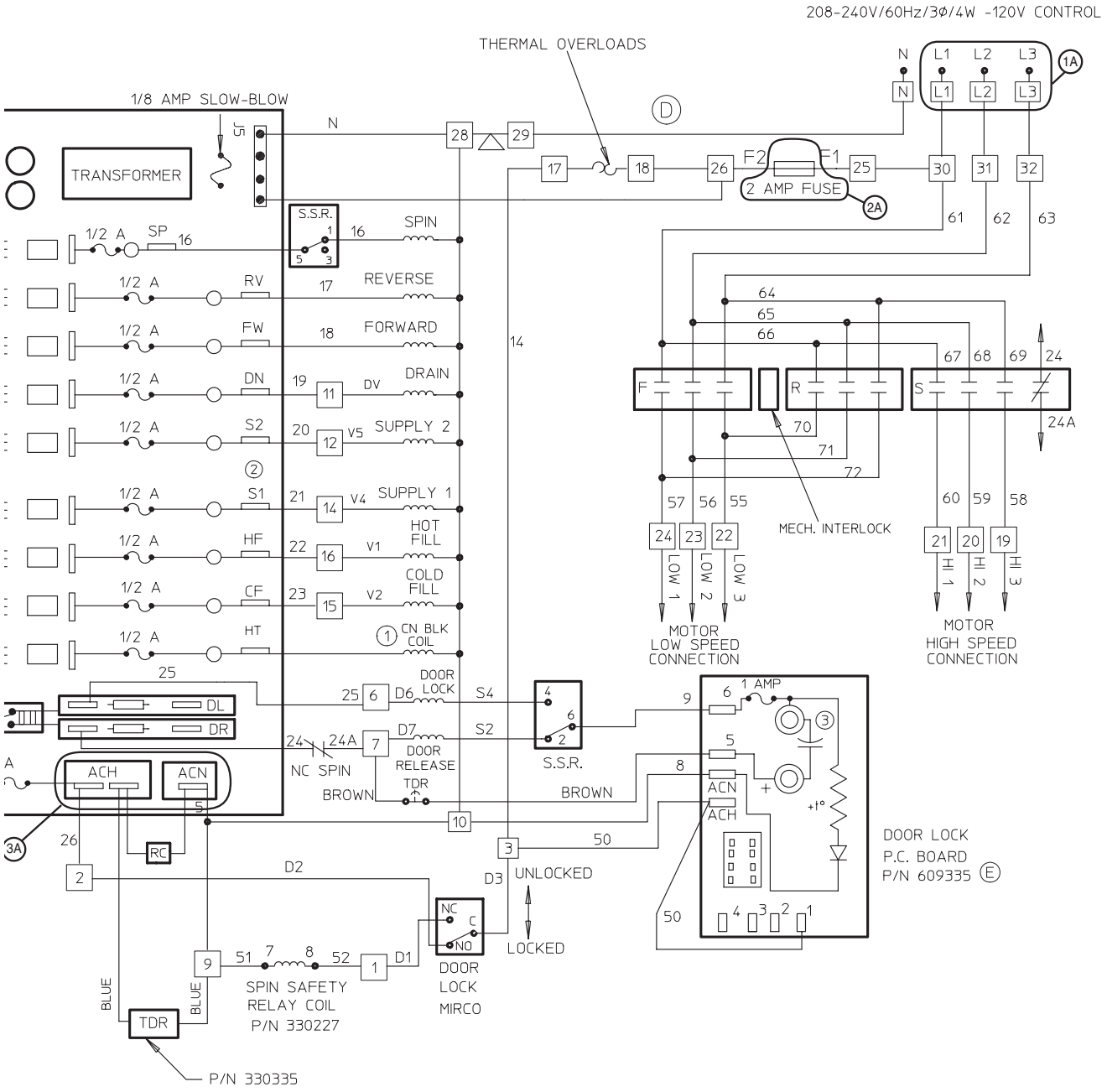
Machine Won't Start (Coin) (Sheet 2 of 2)



CHM427S
606909(F)

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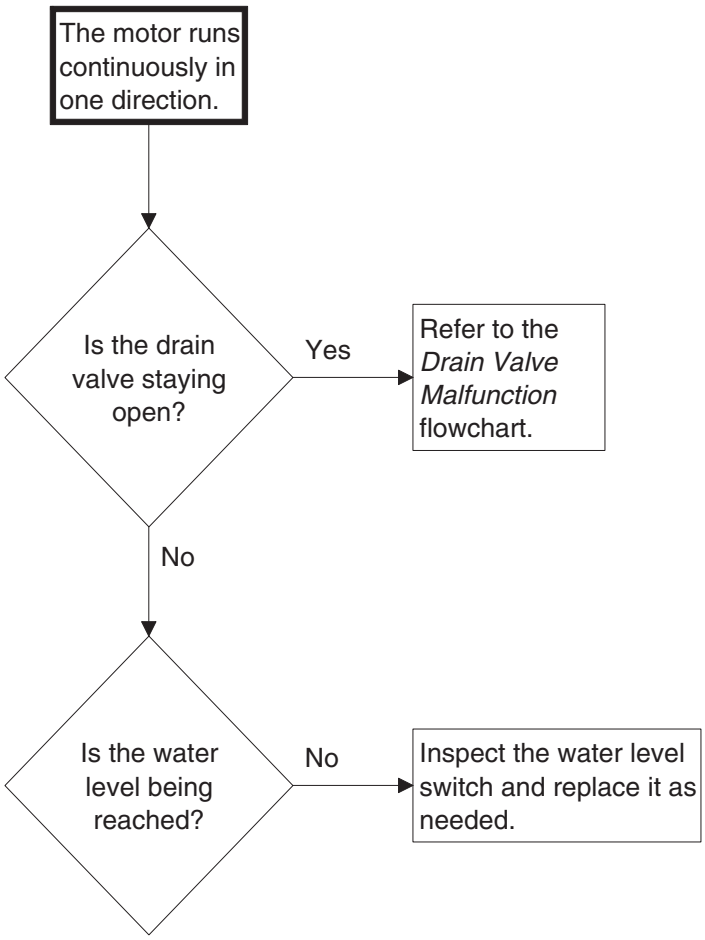
29. Motor Runs Continuously in One Direction


The motor runs continuously in one direction.
Is the drain valve staying open?
Yes
Refer to the *Drain Valve Malfunction* flowchart.
No
Is the water level being reached?
No
Inspect the water level switch and replace it as needed.

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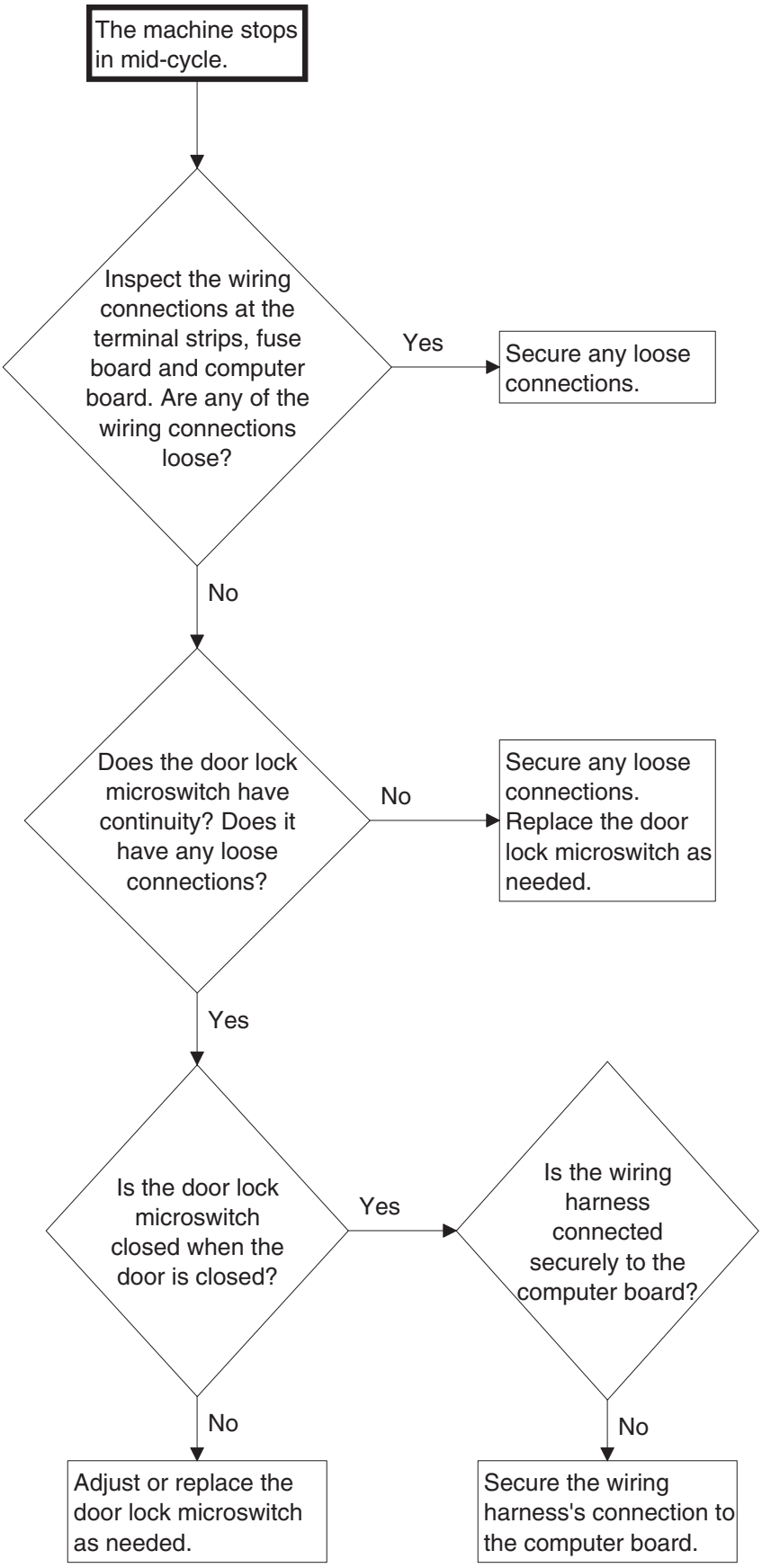
30. Machine Stops in Mid-Cycle


The machine stops in mid-cycle.
Inspect the wiring connections at the terminal strips, fuse board and computer board. Are any of the wiring connections loose?
Yes
Secure any loose connections.
No
Does the door lock microswitch have continuity? Does it have any loose connections?
No
Secure any loose connections. Replace the door lock microswitch as needed.
Yes
Is the door lock microswitch closed when the door is closed?
Yes
Is the wiring harness connected securely to the computer board?
No
Adjust or replace the door lock microswitch as needed.
No
Secure the wiring harness's connection to the computer board.

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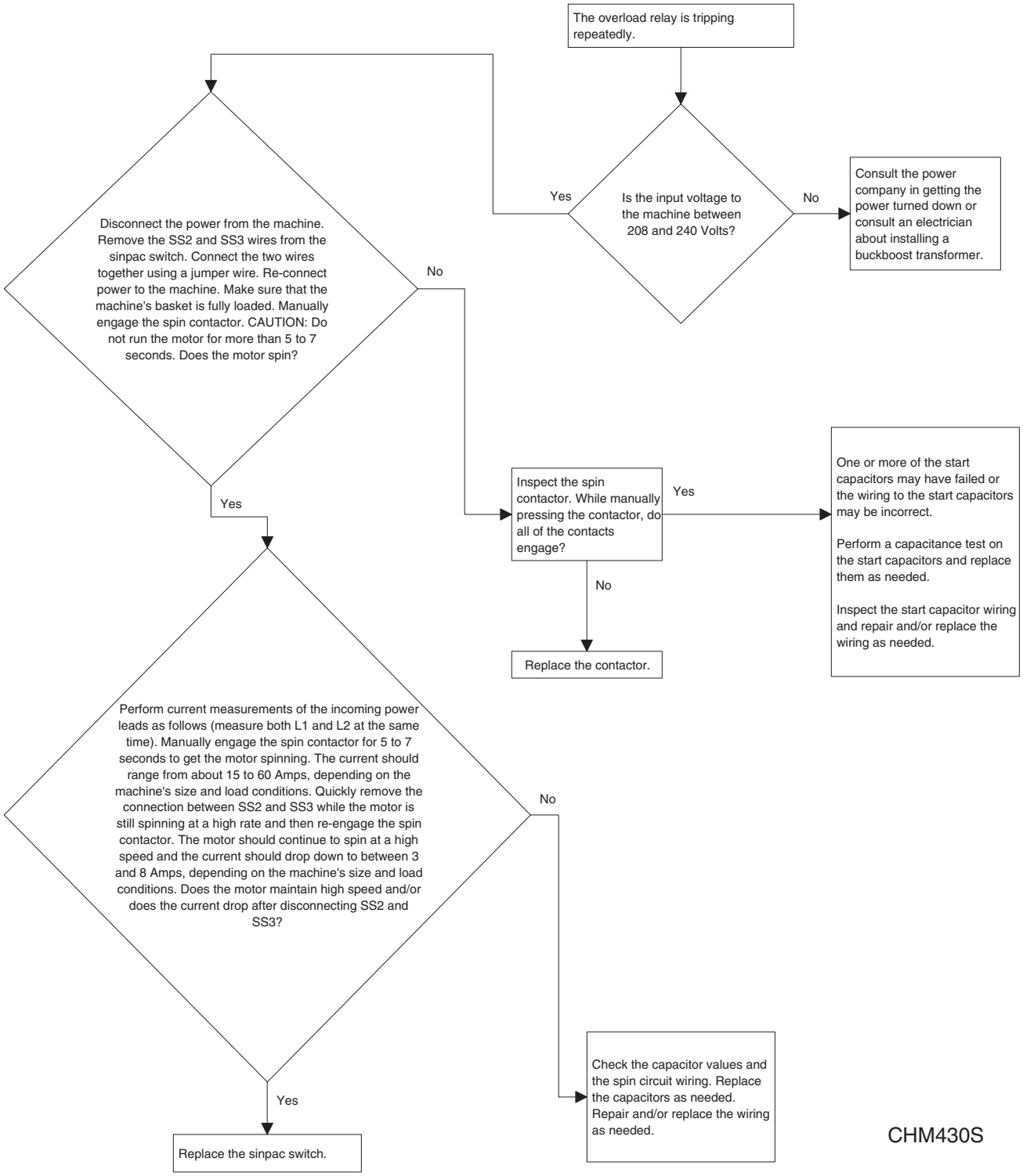
31. Overload Relay Tripping Repeatedly

Repeated overload tripping may result from a failed sinpac switch. Symptoms of a failed sinpac switch may include motor humming without rotation during spin or high current during running speed.


The overload relay is tripping repeatedly.
Is the input voltage to the machine between 208 and 240 Volts?
Yes
No
Consult the power company in getting the power turned down or consult an electrician about installing a buckboost transformer.
Disconnect the power from the machine. Remove the SS2 and SS3 wires from the sinpac switch. Connect the two wires together using a jumper wire. Re-connect power to the machine. Make sure that the machine's basket is fully loaded. Manually engage the spin contactor. CAUTION: Do not run the motor for more than 5 to 7 seconds. Does the motor spin?
No
Yes
Inspect the spin contactor. While manually pressing the contactor, do all of the contacts engage?
Yes
No
One or more of the start capacitors may have failed or the wiring to the start capacitors may be incorrect.
Perform a capacitance test on the start capacitors and replace them as needed.
Inspect the start capacitor wiring and repair and/or replace the wiring as needed.
Replace the contactor.
Perform current measurements of the incoming power leads as follows (measure both L1 and L2 at the same time). Manually engage the spin contactor for 5 to 7 seconds to get the motor spinning. The current should range from about 15 to 60 Amps, depending on the machine's size and load conditions. Quickly remove the connection between SS2 and SS3 while the motor is still spinning at a high rate and then re-engage the spin contactor. The motor should continue to spin at a high speed and the current should drop down to between 3 and 8 Amps, depending on the machine's size and load conditions. Does the motor maintain high speed and/or does the current drop after disconnecting SS2 and SS3?
No
Yes
Check the capacitor values and the spin circuit wiring. Replace the capacitors as needed. Repair and/or replace the wiring as needed.
Replace the sinpac switch.

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32. Compartment 2 of Supply Dispenser Not Flushing Completely

Compartment 2 of the supply dispenser is not flushing completely.

Is there low water pressure (i.e., less than 30 psi) to the supply dispenser?

Yes

Install a hose clamp onto one of the hoses connecting to the top of the vacuum breaker and tighten the hose clamp slightly. Refer to the ***Vacuum Breaker Illustration***

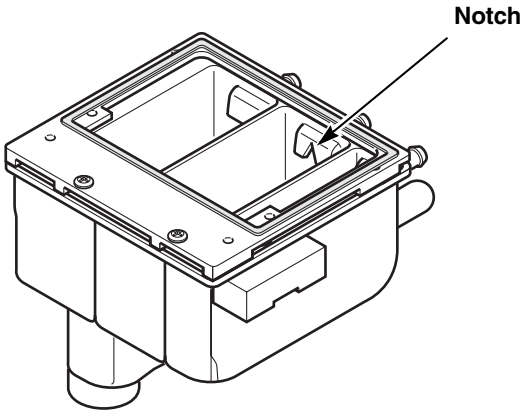
NOTE: If the water pressure is corrected to factory specifications, the hose clamp may have to be removed.

As an alternative, cut a 3/4-inch by 1/2 inch notch out of the bottom of the water deflector in compartment 2 of the supply dispenser. Refer to the ***Dispenser Illustration***

NOTE: If the water pressure is corrected to factory specifications, the notch must be plugged to avoid splashing.

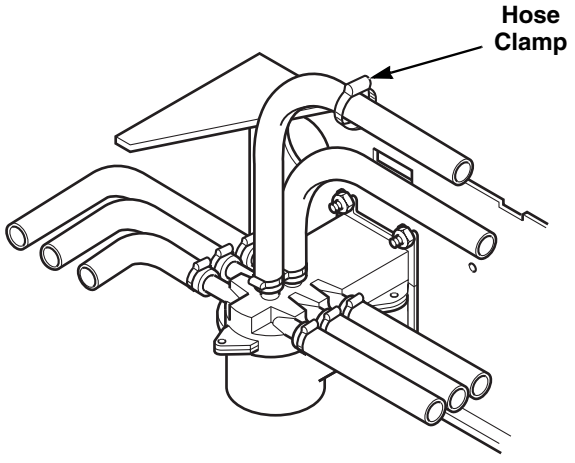
CHM443S

Dispenser Illustration



CHM366S

Vacuum Breaker Illustration



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33. Troubleshooting and Cleaning the Coin Drop

When coins are placed into the coin slot, do they fall into the coin vault and does the coin drop sensor register that coins have been entered? Refer to *Figure 1* for the path that coins follow when the drop is working properly.

No

Is proper electrical power supplied to the coin drop?

No → Refer to the wiring diagram supplied with the machine for connection information.

Yes

Is the machine level?

No → Refer to the installation manual supplied with the machine for instructions on leveling the machine.

Yes

Is the coin drop clean?

No

1. Disconnect electrical power to the machine and the coin drop.

2. Remove the coin drop from the machine.

3. If lint is preventing coins from rolling through the coin drop, blow compressed air through the coin entry and along the side of the coin drop. Refer to *Figure 2*.

4. Insert a coin into the coin drop. If the coin does not fall through the drop, continue to step 5.

5. Remove the cotter pin from the top of the drop. Refer to *Figure 2*. Save the pin for reinstallation when the cleaning of the coin drop is complete.

6. Move the metal clip closer to the sensor so that it comes off of the frame. Refer to *Figure 2*.

7. Remove the coin return from the coin drop frame. Refer to *Figure 3*.

8. Check the path in the coin drop for lint and residue. If lint or light residue is present, use a cotton swab to remove it. If heavy residue is present, it may be necessary to first scrape off the excessive residue and then to use a cotton swab dipped in water or isopropyl alcohol to remove the remainder of the residue. Refer to *Figure 4*.

9. Check the return pendulum to verify it swings freely. If the pendulum does not swing freely, spray the pendulum pivot point with Teflon-based lubricant and move the pendulum back and forth 3 times. An additional application of Teflon-based lubricant may be necessary to ensure the pendulum swings freely. Refer to *Figure 5*.

10. Check the coin drop sensor for dust or dirt on the eyes. Wipe the eyes with a dry cotton swab. Refer to *Figure 6*. IMPORTANT: Do not use isopropyl alcohol to clean the electronic sensor or eyes.

11. Reinstall the coin return onto the coin drop frame.

12. Reinstall the metal clip and slide toward the coin insert slot. All cotter pin holes must line up.

13. Reinstall the cotter pin.

14. Place the coin drop on a level surface to verify that coins follow the correct path to the coin drop. It may be necessary to lift the coin drop to allow the coin to follow through the sensor.

15. Reinstall the coin drop into the machine.

16. Reconnect electrical power to the machine and coin drop.

17. Insert a coin into the coin drop to verify that the coin drop is operating properly.

If the coin drop does not operate properly after the above steps have been completed, corrosion of the metal or vandalized components within the coin drop may be preventing it from functioning properly. Replace the coin drop.

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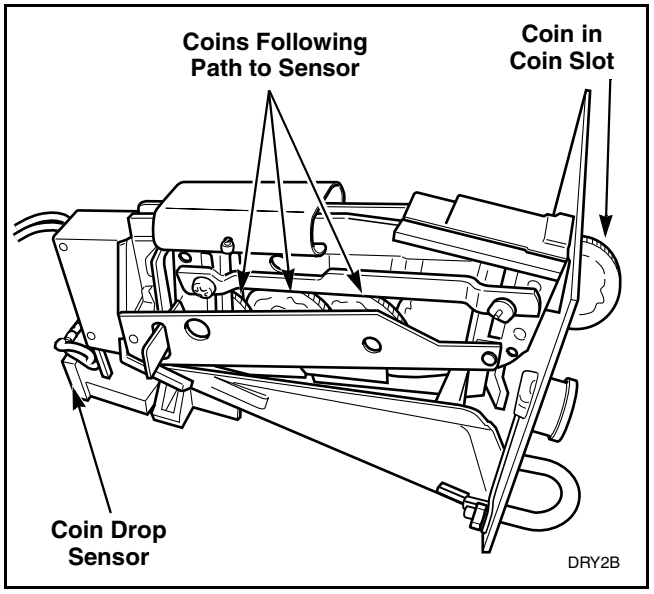

Figure 1

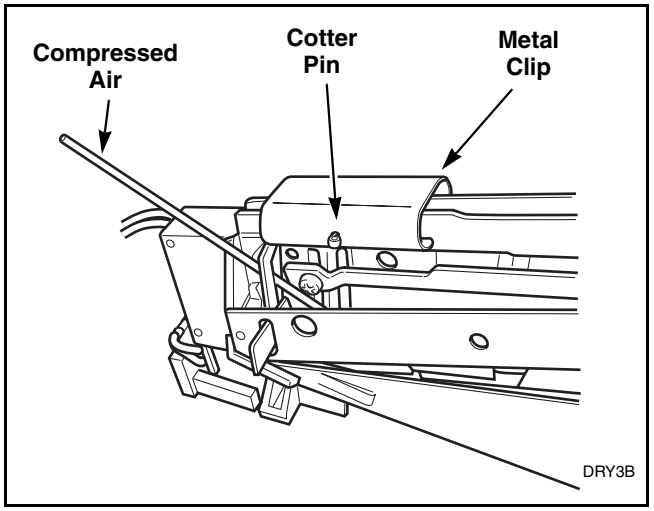

Figure 2

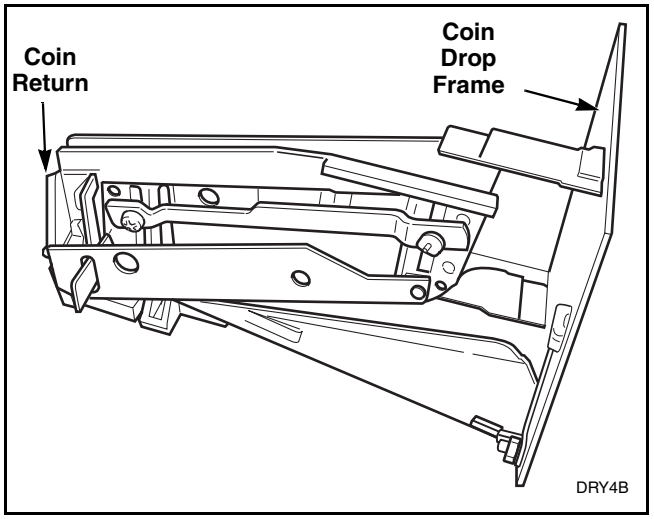

Figure 3

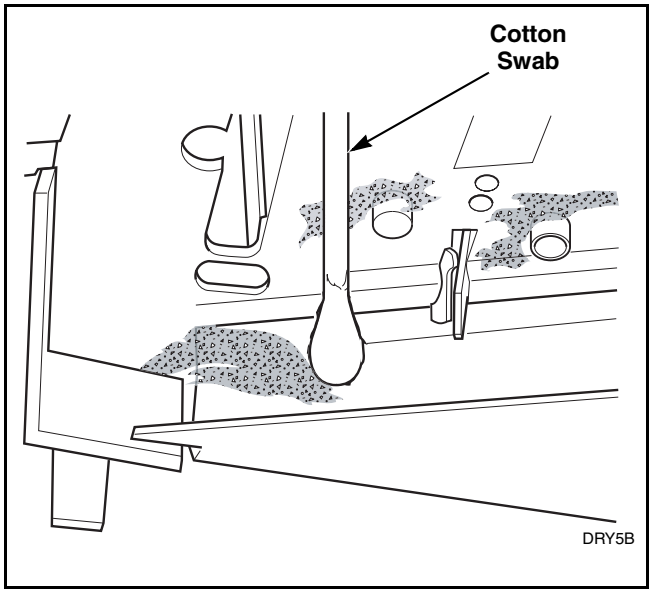

Figure 4

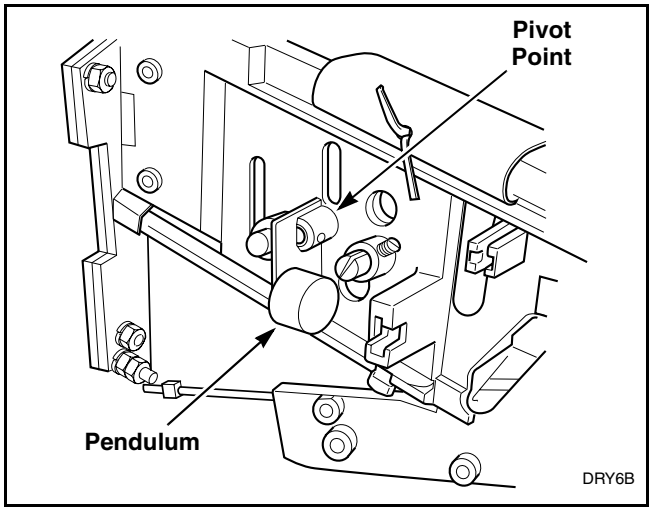

Figure 5

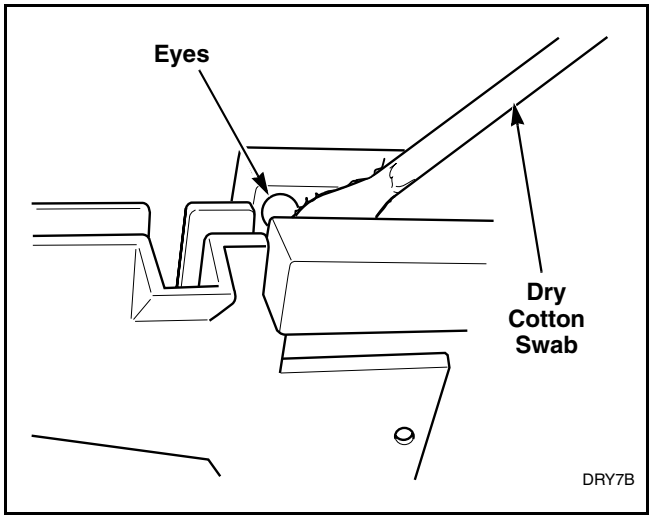

Figure 6

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Notes

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